43174

S/263/62/000/023/004/005
E194/E155

9.4172

AUTHORS: Vavrouch, Dusan, and Dvořák, Jiří

TITLE: A pneumatic infrared radiation receiver

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk, Izmeritel'naya tekhnika, no.23, 1962, 63, abstract 32.23.397. (Czech. patent cl. 421, 4/13, 42h, 20/01, no.99447, April 15, 1961)

TEXT: The patented pneumatic receiver is based on the schematic circuit of an American receiver. It consists of a chamber, one wall of which is made of a material transparent to infrared radiation. Inside the chamber an absorbing element periodically receives infrared radiation through a shutter and is thereby heated, which raises the pressure of the gas in the chamber. The pressure change is picked up by an elastic reflecting diaphragm. The surface of the diaphragm is fully sealed and it is a component of an optical system consisting of a meniscus lens, a plane grating with transparent and opaque bands of equal width, a condenser, a lamp, and a photocell with mirror. If the diaphragm is flat the upper half of the grating illuminated

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by the lamp is reflected from the diaphragm and gives a reflection in the lower half of the grating. The transparent bands then coincide with the opaque, and little light reaches the photocell from the mirror and the current in the circuit is low. When the diaphragm is deformed by pressure, it becomes convex or concave and more or less radiation reaches the photocell, giving more or less current. The current is then amplified and recorded in the usual way. The chamber is connected with the internal space by a capillary so that rapid changes in the pressure do not alter the shape of the diaphragm. Obviously the backing surface to which the membrane is fixed should be very well finished and accurate so as not to introduce errors into the light distribution. Hitherto the backing has consisted of hardened carbon steel, which required prolonged heat-treatment, accurate grinding and polishing and was, moreover, rapidly corroded during the process of degreasing in an ultrasonic field. This defect affected the performance of the receiver. In the device patented the backing surface is made of easily worked minerals, whose surfaces do not corrode.

Card 2/2 [Abstractor's note: Complete translation.]

VAVROUCH, L.

VAVROUCH, L. Swiss project of the Rhone-Rhine waterway. p. 414.

Vol. 5, No. 11, Nov. 1955
VODNI HOSPODARSTVI
TECHNOLOGY

So: East European Accessions, Vol. 5, No. 5, May 1956

KLAPETEK, J.; technicka spoluprace: VAVROUCHOVA, E. PhMr.

An improved paste for attaching EEG electrodes. Cesk. neurol. 26 no.1:12-17 Ja '63.

1. Neurologicka klinika lekarske fakulty PU v Olomouci, prednosta prof. dr J. Hrbek, DrSc.
(ELECTROENCEPAHLOGRAPHY) (EQUIPMENT AND SUPPLIES)

VAVROUSEK, J.

Ten years of milk and egg preservation through drying and condensation. p. 246. Vol. 6, no. 5, 1955. PRUMYSL POTRAVIN. Praha.

Source: East European Accessions List (EEAL), LC, Vol. 5, no. 3, March 1956.

VAVROUSEK, J.

VAVROUSEK, J. Experience of the dairy industry with collecting, treating, and transporting milk. p. 426

Vol. 7, no. 9, 1956
PRUMYSL POTRAVIN
TECHNOLOGY
Praha, Czechoslovakia

So: East European Accession, Vol. 6, No, 2, 1957

VAVROUSEK, J. MUDr

[illegible], ZD. [illegible]; [illegible], J. MUDr.; [illegible], C. MUDr.; [illegible]
[redacted]

[illegible] report on [illegible] surgery for [illegible] caused by tuberculous intrathoracic nodes. [illegible]
[illegible] 7.

1. III. [illegible] odd. st. [illegible] detske tbc lecebny v Kosum[illegible]. [illegible] laryngologicke odd. [illegible] v [illegible], prednosta [illegible] Horacek.
(BRONCHI, stenosis
caused by intrathoracic tuberc. of [illegible] nodes, [illegible].
(Cz))
(TUBERCULOSIS, [illegible], compl.
bronchial stenosis caused by intrathoracic [illegible] tuberc., sur., (Cz))

VAVROUCH, Josef, inz.

"Machining hard-to-machine materials" by M. Mikovec and others. Reviewed by Josef Vavrouch. Stroj vyr 12 no.3: 231 '64.

VAVROUSEK, Josef, dr.

Some factors influencing the fulfillment of the plan in poultry and egg processing plants. Prum potravin 14 no. 6:293-296 Je '63.

1. Prazske drubezarske zavody, n.p., Libus u Prahy.

VAVROUSEK, JOZEF

POLAND/Chemical Technology. Chemical Products and Their Application. Food Industry. H-28

Abs Jour: Referat Zhur-Khimiya, No 5, 1958, 16146.

Author : Vavrousek Jozef
Inst :
Title : Production of Egg Powder in Czechoslovakia

Orig Pub: Przegl. jajcz.-drob., 1956, 4, No 10, 15-16.

Abstract: No abstract.

Card : 1/1

VAVROUSEK, J.

New method of production and utilization of whey. (Tp be contd.) p. 278.
Vol. 6, no. 6. 1955. PRUMYSL POTRAVIN. Praha.

Source: East European Accessions List (EEAL), LC, Vol. 5, No. 3. March 1956.

VAVROUSEK, J.

New method of production and utilization of whey. (Conclusion) p. 320.

Vol. 6, no. 7, 1955.

PRUMYSL POTRAVIN. Praha.

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, no. 3, March 1956

h-20

COUNTRY : Czechoslovakia
CATEGORY :

ABS. JOUR. : RZKhim., No. 1959, No. 73029

AUTHOR : Vavrousek, J.
INST. : ---
TITLE : Some Problems of Technical Advances and Prime Cost Decrease in Drying and Condensing of Milk
ORIG. PUB. : Prumysl potravin, 1958, 9, No 4, 178-181

ABSTRACT : Within a few years it is anticipated to expand in Czechoslovakia the collecting and shipping of milk by tank trucks; increase the carrying capacity of the latter to 10 tons; increase the size of milk cans to 40-50 liters; lower the temperature of milk in shipment from 15° to 10-12° put in effect automatic regulation of the pH of solutions used in milk-can washing machines; to replace pasteurizing of milk, prior to condensing, by "uperizatsiya". It is proposed to widen the range of dairy products by making dry milk with cocoa, condensed milk with sugar, with cocoa, and coffee, condensed cream with cocoa, coffee, etc.

G. Titov.

CARD: 1/1

VAVROUSEK, J.

VAVROUSEK, J. Some principles concerning the wholesale purchase and distribution of milk and milk products. p. 523

Vol. 7, no. 11, 1956
PRUMYSL POTRAVIN
TECHNOLOGY
Praha, Czechoslovakia

So: East European Accession, Vol. 6, No. 2, 1957

VAVROUSEK, J. ; SULC, J.

Report on the Polish dairy and poultry industries. p. 414.

PRUMYSL POTRAVIN. Praha.

Vol. 6, no. 8, 1955.

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, no. 3, March. 1956.

VAVROUSEK, J.; SULC, J.

Experiences from the Polish dairy and poultry industries. p. 468.

PRUMYSL POTRAVIN. Praha. Vol. 6, no. 9, 1955.

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, no. 3, March 1956.

VAVROUSEK, Josef, dr. (Praha)

More important factors influencing the fulfillment of the plan of the egg and poultry processing enterprise. Elelm ipar 17 no.5: 145-149 My '63.

KYBAL, Jan; VAVROUSKOVA-ZADINOVA, Kamila; technicky spolupracovala Marie Zahalkova.

Rye as a basic substrate in cultivation of Claviceps purpurea; active component of inoculated substance in field cultivation of ergot. Cesk. biol. 4 no.9:556-559 Oct 55.

1. Vyzkumny ustav lecivych rostlin, Praha.
(ERGOT ALKALOIDS,
Claviceps purpurea, field cultivation)

PARIZEK, J.; NEMECEK, S.; VAVROVA, I.

Concealed presence of glioma in a 4-year-old child. Cesk. neurol. 26 no.5:301-303 S '63.

1. Neurochirurgicka klinika lekarske fakulty KU v Hradci Kralove, prednosta prof. dr. R. Petr Detska klinika lekarske fakulty KU v Hradci Kralove, prednosta prof. dr. J. Blecha.
(BRAIN NEOPLASMS) (GLIOBLASTOMA MULTIFORME)
(OPTIC NERVE) (CEREBELLAR NEOPLASMS)
(INTRACRANIAL PRESSURE) (BLINDNESS)

CHLYERNIK, Yan [Cernik, J.]; MISTR, Adol'f [Mistr, Adolf]; VAVROVA, Yaroslava [Vavrova, J.]; VAVRA, Miloch [Vavra, Milos]

Photographic properties of monomethylentiacarbocyanine dyes. Zhur. nauch. i prikl. fot. i kin. 10 no.1:34-38 Ja-F '65. (MIRA 18:4)

1. Institut chistykh reaktivov, Brno, Chekhoslovakiya.

Vavrova, L.

ZAHALKOVA, A.;VAVROVA, L.

Role of tuberculosis in child mortality and morbidity. Pediat. listy, Praha 7 no. 3:153-157 May-June 1952. (CLML 22:4)

1. Of the Institute of Social Medicine (Head--Prof. V. Prosek, M. D.) of Charles University, Prague.

5.5400
5.3610

Z/009/60/010/05/004/040
E112/E153

AUTHORS: Vladimír Medonos and Marcela Vávrová

TITLE: Polarographic Determination of Thiourea

PERIODICAL: Chemický Průmysl, Vol 10, 1960, Nr 5, pp 234-237

ABSTRACT: Thiourea is produced by passing carbon dioxide into a suspension of calcium cyanamide in a solution of ammonium sulphide. The authors present a quick polarographic method for its estimation in the rather complex reaction mixture. The conventional method of titration with silver nitrate is too cumbersome and the polarographic method offers advantages. The position of halfwave potentials, changes with the concentration of thiourea. A wave with best characteristics is obtained in a medium of 0.2 N-NaOH, the halfwave potential of which is about 0.3 V. An alkaline medium is, however, not suitable for the direct estimation of thiourea because colloidal sulphur is precipitated from the present hydrogen sulphide. Furthermore, maxima are formed which cannot be avoided, even by the addition of gelatine. The authors have developed a polarographic method using as reaction medium a IN sulphuric acid plus 3 gms of cadmium acetate per one litre, the latter compound effecting a complete

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Polarographic Determination of Thiourea

elimination of sulphide ions. Cyanamides, dicyandiamide, or urea, have no deleterious effect on the estimation of thiourea. The authors give experimental details of the method. A current of a voltage between 0.2 and 0.5 V corresponding to the horizontal part of the polarographic wave of thiourea of concentration 2 x 10-3 to 6 x 10-3 N. is passed between the dropping mercury and calomel electrode. The amplitude of the ammeter is directly proportional to the concentration of thiourea and can be read from the calibration diagram. Results of analyses were evaluated by variant analyses of factorial experiments. Results are tabulated, giving mean squares, degree of freedom, variants and statistical significance. The most important factor affecting results was the concentration of thiourea in the analyzed sample. There are 4 figures, 2 tables and 13 references, of which 8 are Czech, 2 German, 1 Italian, 1 Soviet and 1 English.

Card 2/2

ASSOCIATION: Vysoká škola chemicko-technologická, Praha (University of Chemical Technology, Prague)

SUBMITTED: February 15, 1960

SKALICKY, J.; NOVOTNA, H. Techn. spoluprace: CIZKOVA, A.; VAVROVA, V.

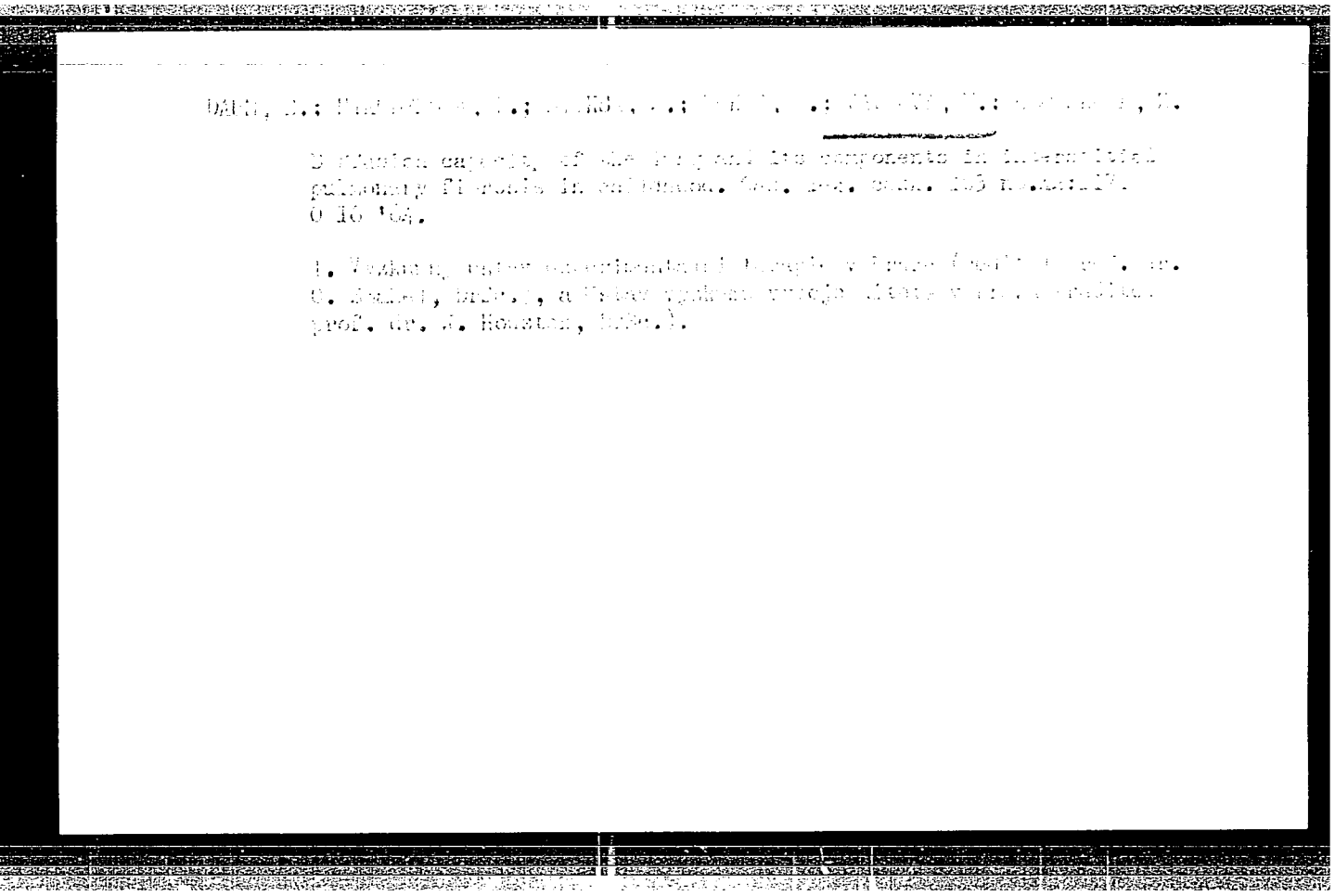
Water disinfection with peroxides. Cesk. hyg. 10 no.2:100-106 Mr '65.

1. Vojensky ustav hygieny epidemiologie a mikrobiologie, Praha.

HOUSTEK,J.; TOMASOVA, H.; MASOPUST, J.; VAVROVA, V.

Mucoproteins in the digestive tract in pancreatic cystic fibrosis. Cesk. pediat. 19 no.7:585-593 Jl'64

1. Ustav vyzkumu vyvoje ditete a katedra fakultni pediatrie fakulty detskeho lekarstvi KU [Karlovy univesity] v Praze (vedouci : prof. dr. J.Houstek, DrSc.); Ustredni biochemicka laborator detske fakultni nemocnice v Praze (vedouci: MUDr. J.Masopust, CSc.)



SAMANEK, M.; VAVROVA, V.; ZAJIC, F.; VOKAC, Z.

Diagnosis of disorders of acid-base equilibrium by analysis of expired air. Cesk. pediat. 19 no.8:707-712 Ag '64.

1. Katedra fakultni pediatrie a Ustav vyzkumu vyvyje ditete fakulty detsekho lekarstvi v Praze (vedouci prof. dr. J. Houstek) a Ustav pro choroby obehu krevniho v Praze (reditel prof. dr. J. Brod).

VOKAC, Z.; ZAPLETAL, A.; VAVROVA, V.

Lung nitrogen clearance following acetylcholine aerosol administration in asthmatic children. Cesk. pediat. 20 no.3:207-212 Mr '65

1. Research Institute of Child Development and Second Children's Clinic, Prague.

HOUSTEK, J.; VAVROVA, V.; VOKAC, Z.

Respiratory disturbances in mucoviscidosis. Cesk. pediat. 20 no.3:415-420 Mr '65

1. Second Children's Clinic and Research Institute of Child Development, Faculty of Pediatrics, Prague.

HOUSTEK, J. prof. dr (Praha 2, Sokolska 2), VAVROVA, V.

Our experiences with mucoviscidosis. Cas. lek. cesk. 104 no.8: 201-208 26 F '65.

1. II. detska klinika fakulty detskeho lekarstvi Karlovy University v Praze (prednosta: prof. dr. J. Houstek, DrSc) a Ustav vyzkumu vyvoje ditete fakulty detskeho lekarstvi Karlovy University v Praze,(reditel: prof. dr. J. Houstek, DrSc.).

HOUSTEK, J.; VAVROVA, V.

Frequency and forms of mucoviscidosis in Czechoslovakia. Cesk. pediat. 20 no.3:412-414 Mr '65

1. Second Children's Clinic and Research Institute of Child Development, Faculty of Pediatrics, Praha.

KVASNICKA, Jiri; KVASNICKOVA, Eva; GROH, Jindrich; DANICKOVA, Zdena; BARTOS, Vladimir; EHREN, Josef. Techn. spoluprace VAVROVA, Eva.

Mineral and water changes during the aging process. I. Methods of determination of minerals in erythrocytes. Normal values. Differences between the normal values in women and men. Sborn. ved. prac. lek. fak. Karlov. Univ. 9 no.1:369-374 '64.

Mineral and water changes during the aging process. II. Mineral and water changes in erythrocytes in different age groups. Ibid.:375-381

1. I. interni klinika (prednosta: prof. MUDr. F. Cernik) Karlovy University v Hradci Kralove.

HOUSTEK,J.; [illegible]AUM, S.; HLOUSKOVA,Z.; NIKODYMOVA, L.; STIKSA,J.; VAVROVA, V.; VOKAC,Z.

Functional changes in diffuse pulmonary fibrosis. Cesk. pediat. 20 no.3:366-371 Mr '65

1. Second Children's Clinic; Research Institute of Child Development, and Research Institute of Experimental Therapy, Prague.

DAUM, S.; NIKODYMOVA, L.; STIKSA, J.; VOKAC, Z.; VAVROVA, V.; HLOUSKOVA, Z.
Technical assistance: MACHANOVA, A.; PLACHA, B.; URBANOVA, A.

Diffusing capacity of the lungs and its components in interstitial pulmonary fibroses during adolescence. Rev. Czech. med. 11 no.3: 180-189 '65.

1. Institute of Postgraduate Medical Training, Chair of Internal Medicine, Prague (Director: Prof. O. Smahel, M.D., D.Sc.), Research Institute of Experimental Therapy (Director: Prof. O. Smahel, M.D., D.Sc.), and Research Institute of Child Development, Prague (Director: Prof. J. Houstek, M.D., D.Sc.).

VAVROVA,V.

The imprint test in screening for mucoviscidosis. Cesk. pediat. 20 no.1:16-22 Ja '65

1. Ustav vyzkumu vyvoje ditete fakulty detskeho lekarstvi Karlovy University v Praze (reditel: prof. dr. J. Houstek, DrSc.).

SIMANKOVA, N.; VAVROVA, V.

Genealogical study of families with mucoviscidosis. Cesk. pediat. 18 no.10:942-946 O '63.

1. I detska klinika fakulty detskeho lekarstvi KU v Praze, prednosta prof. dr. J. Svejcar II detska klinika fakulty detskeho lekarstvi KU v Praze a Ustav vyzkumu vyvoje ditete v Praze, reditel prof. dr. J. Houstek.
(PANCREATIC CYSTIC FIBROSIS)
(RESPIRATORY TRACT INFECTIONS)
(PEPTIC ULCER) (ALLERGY)
(PREGNANCY IN DIABETES)
(PREGNANCY COMPL.)
(CONSANGUINITY) (DELIVERY)
(GENETICS, HUMAN)

DAUM, S.; NIKODYMOVA, L.; STIKSA, J.; VOKAC, Z.; VAVROVA, V.; HLOUSKOVA, Z.;
Technicka spoluprace: MACHANOVA, A.; PLACHA, B.; URBANOVA, A.

Diffusion capacity of the lungs and its components in interstitial pulmonary fibrosis in adolescents. Cas. lek. Cesk. 104 no.49/50: 1366-1371 10 D '65.

1. Vyzkumny ustav experimentalni terapie v Praze (reditel prof. dr. O. Smahel, DrSc.) a Ustav vyzkumu vyvoje ditete v Praze (reditel prof. dr. J. Houstek, DrSc.).

HOUSTEK, Josef; VAVROVA, Vera

The incidence of cystic fibrosis of the pancreas in Czechoslovakia. Cesk. pediat. 17 no.5/6:445-451 Je '62.

1. Katedra fakultni pediatrie a Ustav vyzkumu vyvoje ditete fakulty detskeho lekarstvi University Karlovy v Praze, vedouci prof. MUDr. J. Houstek.

(PANCREATIC CYSTIC FIBROSIS statist)

TOMASOVA, Helena; VAVROVA, Vera; VOKAC, Zdenek

A method for the determination of chlorides in the diagnosis of mucoviscidosis. Cesk. pediat. 17 no.4:324-331 Ap '62.

1. II detska klinika fakulty detskeho lekarstvi Karlovy university v Praze, prednosta prof. MUDr. J. Heustek.

(PANCREATIC CYSTIC FIBROSIS diag)
(CHLORIDES chem) (SWEAT chem)

89491

Z/034/61/000/002/006/006
E073/E535

18.3100

AUTHORS: Jedlička, J., Sedláček, V. Doctor Engineer, Rejf, J. and Vavrovič, J., Engineer

TITLE: Application of Non-soluble Anodes in the Electrolysis of Nonferrous Metals.
Patent Application Class 40c, 3, PV 3389-60, dated May 25, 1960

PERIODICAL: Hutnické listy, 1961, No.2, p.139

TEXT: The anodes are produced from titanium or titanium alloys with a conducting surface layer made of platinum or metals of the platinum group or of metals of the platinum group plus gold or silver. The ratio of the individual metals in the alloys is determined by the intended use of these anodes and also the medium chosen for the particular electrochemical process. By using such anodes, cathode metals of spectral purity were obtained. Compared to current types of anodes, the service life of these is considerably longer.

Card 1/1

VAVROVSKY, F.

" Analysis of the Plan Fulfillment in the Building Industry," p. 31.
(Stavebni Prumysl, Vol.3, No.2, Jan. 1953, Praha.)

SO: Monthly List of East European Accessions, Vol.2, No.9, Library of Congress, September 1953, Uncl.

VAVROVSKY, F.

"Analysis of the Plan of Fulfillment in the Building Industry. (To be contd.)," p. 5.
(Stavebni Prumysl, Vol.3, No.1, Jan. 1953, Praha.)

SO: Monthly List of East European Accessions, Vol.2, No.9, Library of Congress, September 1953, Uncl.

VAVRU, V.

Elimination of image instability. Sdel tech 11 no. 12: 471-472 D '63.

JANIK, A.; VAVRUCH, A.

Psychopathic syndromes in traveling. Cesk. psychiat. 61 no.5: 339-344 O '65.

1. Psychiatricka katedra Ustavu detskeho lekarstvi v Praze a Psychiatricka lecebna v Praze 8.

L 43006-66

ACC NR: AP6031818 SOURCE CODE: CZ/0083/65/000/005/0339/0344

AUTHOR: Janik, A.--Yanik, A.; Vavruch, A.--Vavrukh, A.

ORG: [Vavruch] Department of Psychiatry, UDL, Prague (Psychiatricka katedra UDL); [Janik] Mental Hospital, Prague (Psychiatricka lecebna)

TITLE: Psychopathologic syndromes related to travel [This paper was presented at a regional seminary held in Prague on 17 June 1964.]

SOURCE: Ceskoslovenska psychiatrie, no. 5, 1965, 339-344

TOPIC TAGS: psychiatry, psychoneurotic disorder

ABSTRACT: Review of the cases of 42 psychiatric patients who were hospitalized during or shortly after trips. Only in 8 men and 1 woman was there a presumed likelihood of more than coincidental relationship between stresses related directly to travel and the occurrence of acute outbreak and exacerbation of psychiatric disease -- mostly paranoid schizophrenia. [Based on authors' Eng. abst.] [JPRS: 33,500]

SUB CODE: 06 / SUBM DATE: none / SOV REF: 007 / OTH REF: 002

Card 1/1 MLP

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VAVRUCH, I.

PHASE I BOOK EXPLOITATION CZECH/2433

24(2,4)

International Polarographic Congress. 1st, Prague, 1951

Sborník I. Mezinárodního polarografického sjezdu. Díl 3: Hlavní referaty přednesené na sjezdu. Proceedings...Vol 3: Reviews Read at the Congress. Praha, Přírodovědecké vyd-ví [1952] 774 p. 2,000 copies printed.

Resp. Ed.: Jiří Koryta, Doctor; Chief Ed. of Publishing House: Milan Skalník, Doctor; Tech. Ed.: Oldřich Dunka.

PURPOSE: The book is intended for chemists, chemical engineers, and physicists.

COVERAGE: The book is a collection of reviews and original papers read at the International Polarographic Congress held in Prague in 1951. Uses of polarography in organic and inorganic analysis, in chemistry, medicine, and industrial chemistry are discussed. In the section, Reviews Read at the Congress, Russian and other German or English translations of each review are presented. In the section, Original Papers Read at the Congress, only those translations in Russian, German, and English which have not been published in Volume I are presented. The following scientists participated in the opening of the Congress: Professor Viktor Kemula, Dean of the Faculty of Sciences, Warsaw; Doctor Jaromír Dolanský, Minister of Planning; and Professor Jaroslav Pekárek, Chairman of the Center for Scientific Research and Technical Development. References follow each paper.

ORIGINAL PAPERS READ AT THE CONGRESS

VAYL', S.S., prof.

"Carcinoma and adenoma of the lungs" [in German] by J.Balo. Reviewed by S.S.Vail'. Vop.onk. 5 no.2:244-245 '59. (MIRA 12:6)

(LUNGS--TUMORS) (BALO, J.)

VAYL', V.S., prof.

N.P.Gundobin (1860-1908), one of the founders of Russian pediatrics. Pediatriia 37 no.4:72-75 Ap '59. (MIRA 12:6)
(PEDIATRICS
contribution of Nikolai P. Gundobin (Rus))
(BIOGRAPHIES
Gundobin, Nikolai P. (Rus))

VAVRUCH, IVAN

5

Kinetics of solvent flow in paper chromatography. Emerich Erdös and Ivan Vavruch (Vysoka skola chem.-technol., Prague). *Chem. Listy* 50, 29-35(1956).—With a simple model of an "effective" capillary, the rate equations for ascending, descending, and horizontal arrangements are derived that reproduce the exptl. data well. The consts. with phys. meaning (effective radius and advancing contact angle) are consistent for both ascending and descending arrangements. E. Erdös

CH

(1)

. VAVRUCH, I.

PHASE I BOOK EXPLOITATION CZECH/5380

Pouchlý, Julius, Engineer, Candidate of Chemical Sciences, and Ivan Vavruch, Docent, Doctor of Natural Sciences.

Fysikální chemie koloidních soustav (Physical Chemistry of Colloidal Systems) Praha, SNTL, 1960. 334 p. 2,200 copies printed.

Reviewers: Jiří Mýl, Docent, Engineer, Doctor, and Alexander Tkáč, Docent, Engineer, Doctor; Resp. Ed.: Marie Školová; Chief Ed.: Adolf Balada; Tech. Ed.: Ludvík Charvát.

PURPOSE: This textbook is intended for students specializing in chemical technology at higher institutions of learning; for scientific and technical workers in all branches of the chemical industry and in chemical research; for workers in biology, agriculture, forestry, pharmacy, and medicine; for teachers in special schools; and for those working in the natural sciences.

COVERAGE: The book, the first in the Czech language on colloidal chemistry, was authorized as a textbook for higher institutions of

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learning specializing in chemical technology by decree of the Ministerstvo školstvi a kultury (Ministry of Education and Culture) dated April 4, 1959. The book deals with the basic concepts of colloidal chemistry; the classification of colloidal systems; the kinetic, optical, and mechanical properties of colloids; surface and interphase energies; surface films of insoluble substances; adsorption on a mobile boundary; adsorption on a solid surface; the electrical properties of phase boundaries; ion exchange; lyosols and suspensions; emulsions and foams; aerosols; micelle colloids; high-molecular substances and their solutions; and gels. The authors have attempted to present the material in the light of the most recent views and research in colloidal chemistry, and to demonstrate the laws and regularities of colloidal chemistry as following from several fundamental principles known from the theory of the thermal motion of matter and intermolecular forces, and from the physical chemistry of phase boundaries and the thermodynamics of multicomponent systems. The presentation presupposes a knowledge of general physical chemistry on the part of the reader. The material corresponding to course work at higher schools of chemical technology appears in large

print, while the material intended for deeper study is in smaller type. The microphotos in the book were made with a TTC instrument supplied by the Ministerstvo chemického průmyslu (Ministry of the Chemical Industry) for which the authors thank Professor Stanislav Vesely; the Debyegram of corundum was supplied by Engineer Jaroslav Bauer of the VSCHT (Higher School of Chemical Technology) in Prague. References accompany each chapter. A separate bibliography containing 30 references (15 English, 5 German, 5 Soviet, and 5 Czech) appears at the end of the book.

TABLE OF CONTENTS:

Vavruch, Ivan

Theory of paper chromatography of inorganic compounds. II. Semiquantitative microdetermination of sodium and potassium. Ivan Vavruch, Miloš Hejtmánek, and Jiřina Benzková (Vysoká Škola Chem. technol., Prague). *Chem. Listy* 49, 1782–5(1955); cf. *C.A.* 49, 7923*d*.—A semiquant. microdetn. of Na and K was carried out by ascending chromatography on Whatman No. 1 paper with 0.1 ml. soln. of NaCl and KCl, MeOH as the solvent, and 0.5*N* $AgNO_3$ as the detecting agent (Cl^- moved at the same speed as the salt). The chromatography took 4.5 hrs., the whole analysis 5.5 hrs. The analysis was satisfactory for detg. 15 γ K in the presence of 800 γ Na, and 6 γ Na in the presence of 700 γ K with the av error of ±15 γ K and ±20 γ Na.
M. Hudlický

(2)

VAVRUCH, I. Czechoslovakia CA:47:11780

"Colloidal precipitates obtained from molasses by alcohol."

Listy Cukrovar. 66, 141-3(1949-50); Sugar Ind. Abstr. 12, 91(1950)

VAVRUCH, I. Czechoslovakia CA:47:11772

with E. RUBES

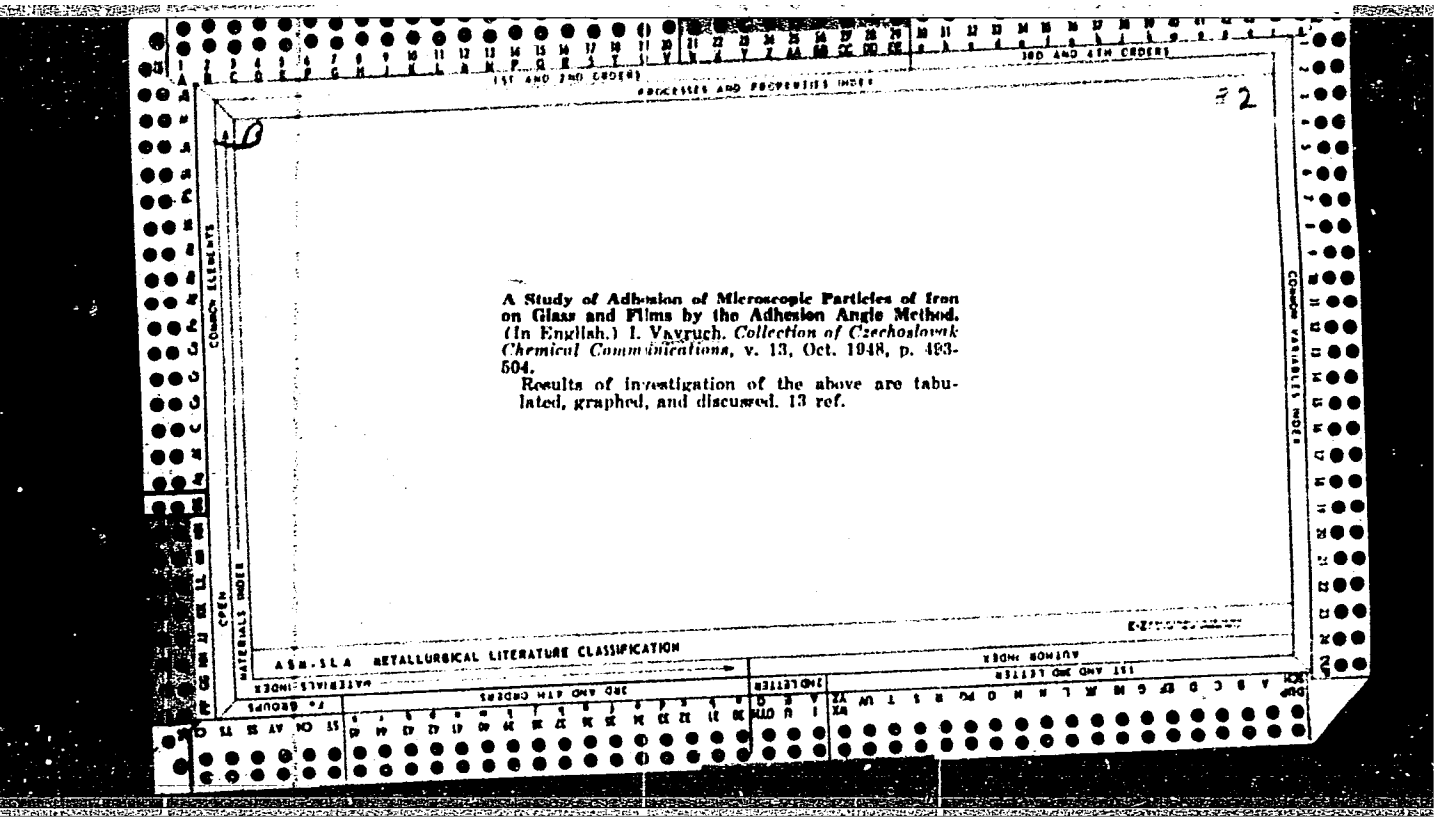
"Control of defecation and second saturation by the continuous measurement of pH and electrical conductivity."

Listy Cukrovar. 66, 131-3 (1949-50); Sugar Ind. Abstr. 12, 87(1950)

VAVRUCH, I. Czech CA: 47:10964

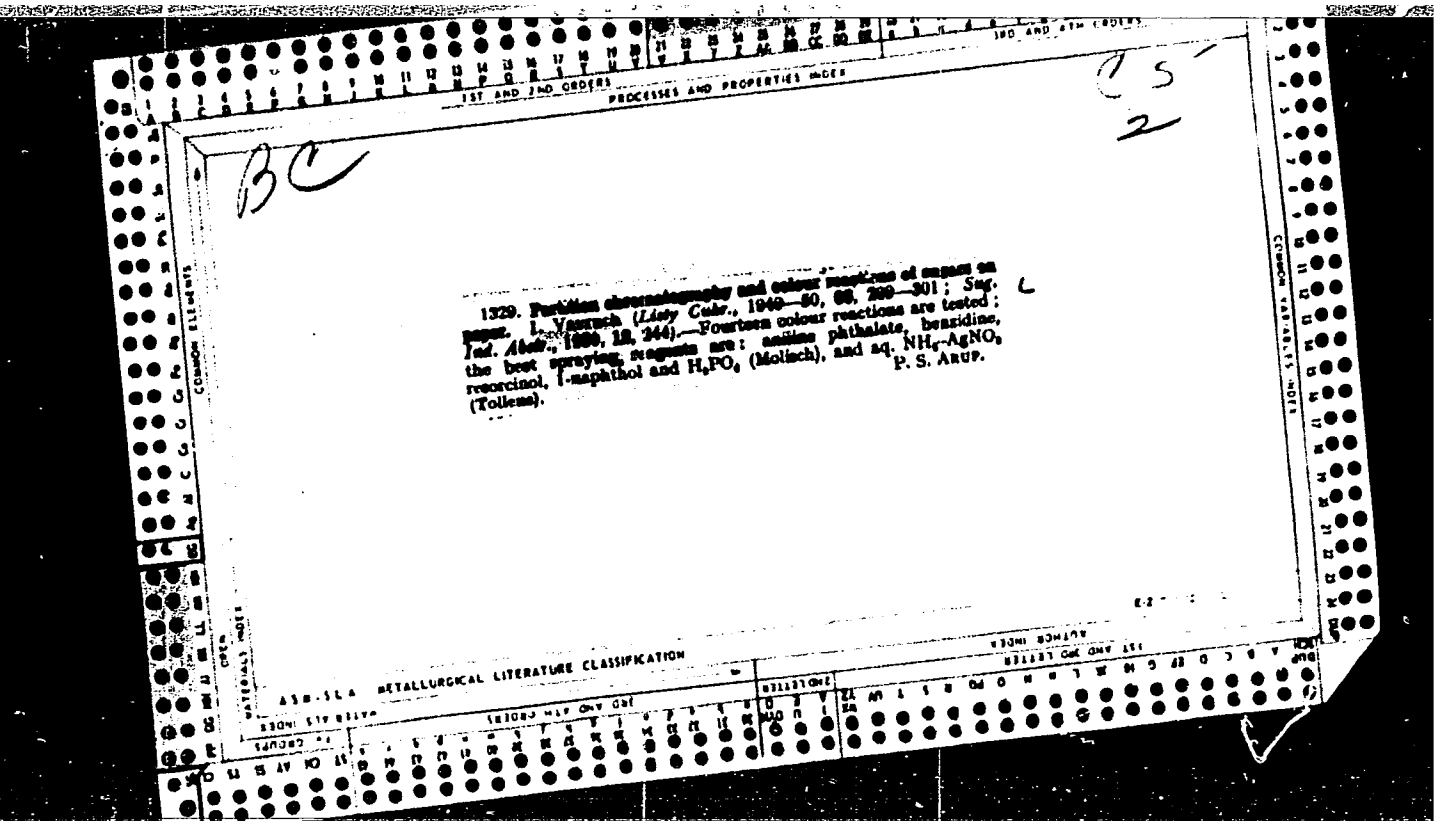
"Physical chemistry of the surface of aqueous solutions of sucrose. II."

Listy Cukrovar. 66, 73 (1949-50; Sugar Ind. Abstr. 12, 17-18 (1950)

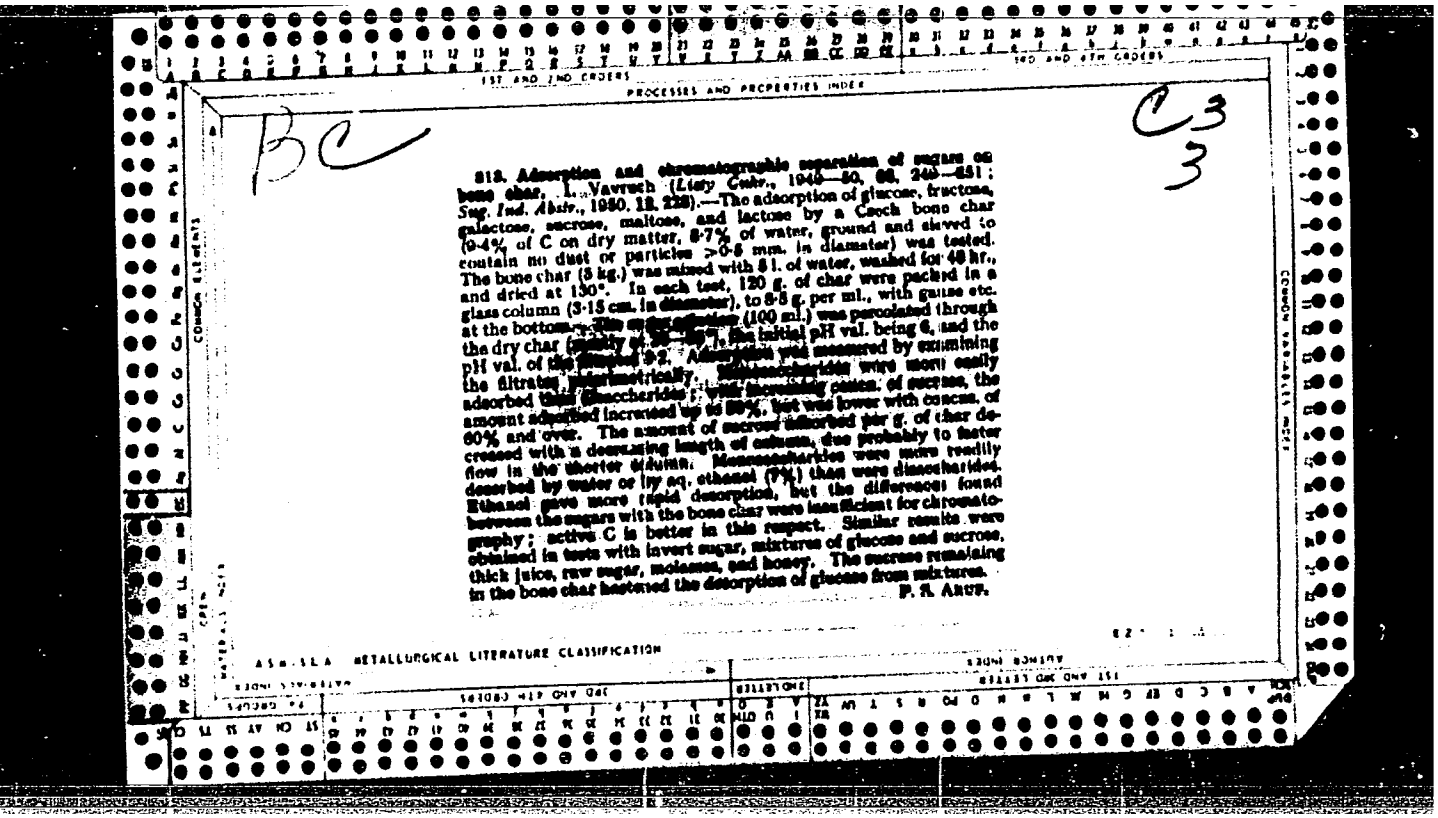


A Study of Adhesion of Microscopic Particles of Iron on Glass and Films by the Adhesion Angle Method. (In English.) I. Vavruch. *Collection of Czechoslovak Chemical Communications*, v. 13, Oct. 1948, p. 493-504.

Results of investigation of the above are tabulated, graphed, and discussed. 13 ref.



1329. Partition chromatography and colour reactions of sugars on paper. L. Vavruch (*Listy Cukr.*, 1949—50, 68, 299—301; *Sug. Ind. Abstr.*, 1950, 12, 244).—Fourteen colour reactions are tested; the best spraying reagents are: aniline phthalate, benzidine, resorcinol, 1-naphthol and H_3PO_4 (Molisch), and aq. NH_4-$AgNO_3$ (Tollens). P. S. ARUP.



818. **Adsorption and chromatographic separation of sugars on bone char.** L. Vavruch (*Listy Cukr.*, 1949—50, 68, 248—251; *Sug. Ind. Abstr.*, 1950, 12, 228).—The adsorption of glucose, fructose, galactose, sucrose, maltose, and lactose by a Czech bone char (0·4% of C on dry matter, 8·7% of water, ground and sieved to contain no dust or particles >0·5 mm. in diameter) was tested. The bone char (5 kg.) was mixed with 8 l. of water, washed for 48 hr., and dried at 150°. In each test, 120 g. of char were packed in a glass column (3·15 cm. in diameter), to 8·8 g. per ml., with gauze etc. at the bottom. The sugar solution (100 ml.) was percolated through the dry char (quality of [illegible]), the initial pH val. being 6, and the pH val. of the filtrate 9·2. Adsorption was measured by examining the filtrates polarimetrically. Monosaccharides were more easily adsorbed than disaccharides; with increasing conen. of sucrose, the amount adsorbed increased up to 80%, but was lower with concns. of 60% and over. The amount of sucrose adsorbed per g. of char decreased with a decreasing length of column, due probably to faster flow in the shorter column. Monosaccharides were more readily desorbed by water or by aq. ethanol (9%) than were disaccharides. Ethanol gave more rapid desorption, but the differences found between the sugars with the bone char were insufficient for chromatography; active C is better in this respect. Similar results were obtained in tests with invert sugar, mixtures of glucose and sucrose, thick juice, raw sugar, molasses, and honey. The sucrose remaining in the bone char hastened the desorption of glucose from mixtures.

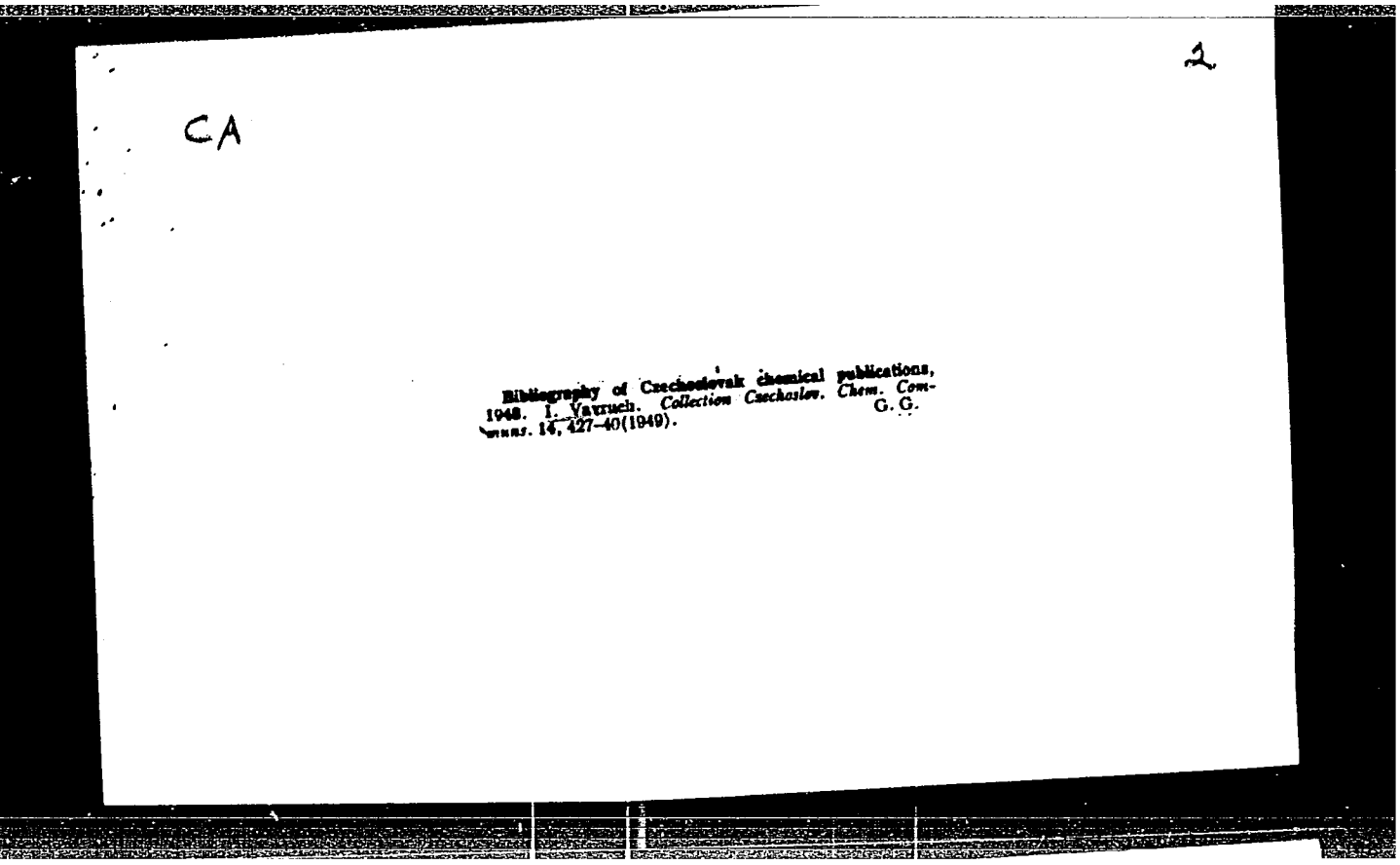
P. S. Arup.

BC

C
3

1221. **Determination of molasses raffinose in molasses by paper partition chromatography.** I. Vavruch (*Listy Cukr.*, 1951, 67, 211–213; *Sug. Ind. Abstr.*, 1951, 13, 168–169; cf. C., 1951, 468).—The raffinose contents of 16 samples of molasses and one of citric acid fermentation slop were determined in aq. 20% undefecated, recently filtered (paper) dilutions by the method of du Whalley *et al.* (cf. C., 1951, 382). Defecated solutions were more difficult to analyse owing to the presence of salts. Standard molasses to which known amounts of raffinose were added were prepared from 140 g. of sucrose, and 87 g. of K lactate (87·8%) in 30 g. of water, heated for 5 hr. (water bath) with stirring, and made up with water to give a syrup of 77° Brix. Molasses solutions of 72–82° Brix were used for the actual analysis. In the method of analysis the paper was spotted with the sample from a marked capillary tube, and dried at 90° for ~45 min. After development (~30 hr.) the paper was dried at 90° for 1 hr., immediately sprayed with α-naphthol, and dried for 15–20 min. at 90°. Separation was satisfactory, and collaborative analyses of one sample by five persons showed for 20 analyses an accuracy of ±0·2%; various molasses contained 0·55–1·48% (average 0·94%) of raffinose; the slop contained 0·08%.

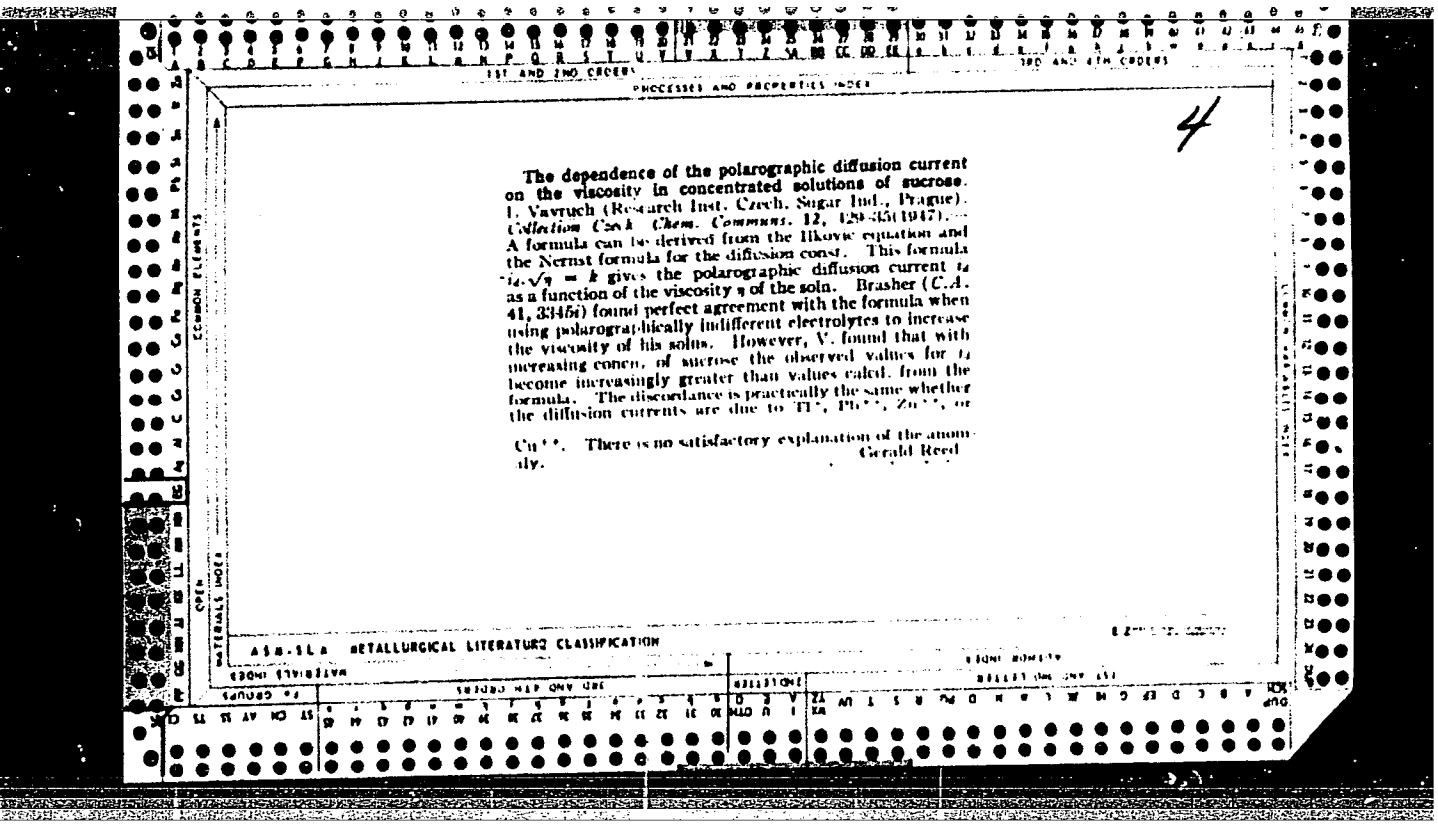
P. S. Arup.



2.

CA

Bibliography of Czechoslovak chemical publications, 1948. I. Vavruch. *Collection Czechoslov. Chem. Communs.* 14, 427–40(1949). G. G.



4

The dependence of the polarographic diffusion current on the viscosity in concentrated solutions of sucrose. I. Vavruch (Research Inst. Czech. Sugar Ind., Prague). *Collection Czech. Chem. Commun.* 12, 128-35(1947).—A formula can be derived from the Ilkovic equation and the Nernst formula for the diffusion const. This formula $i_d \cdot \sqrt{\eta} = k$ gives the polarographic diffusion current i_d as a function of the viscosity η of the soln. Brasher (*C.A.* 41, 3345i) found perfect agreement with the formula when using polarographically indifferent electrolytes to increase the viscosity of his solns. However, V. found that with increasing concn. of sucrose the observed values for i_d become increasingly greater than values calcd. from the formula. The discordance is practically the same whether the diffusion currents are due to Tl^+, Pb^{++}, Zn^{++}, or Cu^{++}. There is no satisfactory explanation of the anom-

Gerald Reed

aly.

B. abs.

3010. **Estimation of refined sugar by the polarographic method.** I. Vavruch (*Cukr. Prum. chim. Technol.*, 1950, 18, 217–220).—The standard conditions which must be fulfilled for the analysis of refined sucrose are: electrolyte 0·002*N*-K_2SO_4, concn. of sucrose 26·0 ± 0·05 g. per 100 ml. or 6·5 ± 0·01 g. per 100 ml. (the latter, if the height of the O max. is < ~ 2·5 mm.), diameter of capillary 0·08 ± 0·001 mm., drop time 3·30 ± 0·05 sec., temp. 20·0 ± 0·3°, atm. pressure 760 ± 10 mm. Hg, velocity of rotation of the potentiometric wheel 6 mv. sec.$^{-1}$. Analysing with free access of air gives a very pronounced O max. of a pointed form. Measurements are made from 0 to −1 v. and the height from the peak (the highest point of the curve) to the upper points of the oscillations of the diffusion current are expressed in microamp. By combination of the use of the absorbing power of activated charcoal and crystallisation from ethanol a "polarographic standard sugar" practically free from surface-active substances is obtained. This, when treated with known amounts of standard beet-sugar molasses or of pure methyl-orange gives known standards against which the samples are tested. Results are expressed in mg.-% × 100 of methyl-orange best converted graphically into mg.-% of molasses. H. WASN.

CA

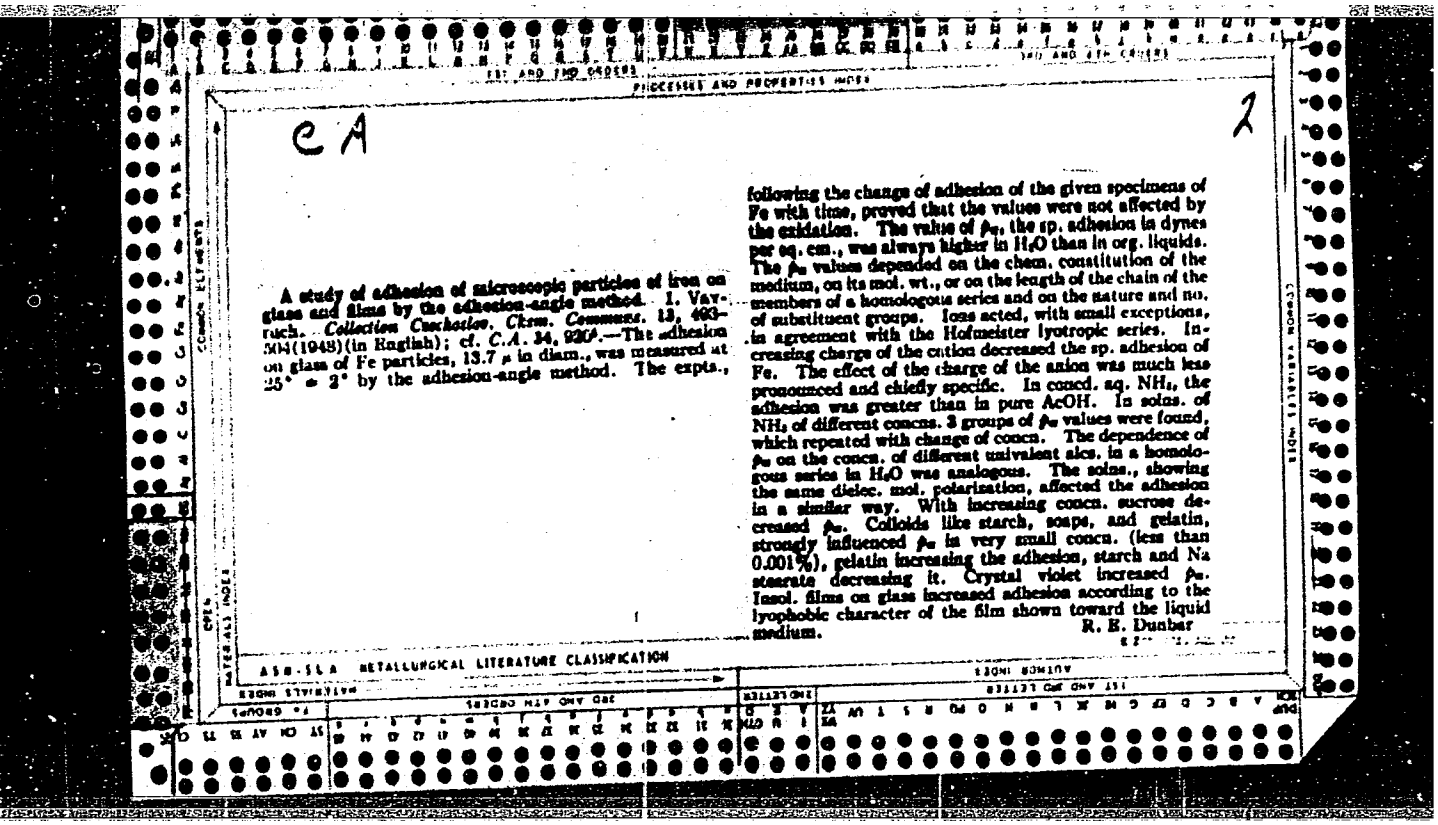
28

Estimation of refined sugar by the polarographic method. I. Vavruch (Czech. Sugar Ind., Prague). *Collection Czechoslov. Chem. Communs.* 15, 217-31(1950)(in English). —The amt. of surface-active substance (I) is estd. by the decrease in the O max. in 0.002 *N* K_2SO_4. Methyl orange is used as a reference. A standard sugar was prepd. by treating 200 g. sugar plus 200 g. H_2O with charcoal and adding 3 l. of EtOH also treated with charcoal and filtering through sintered glass. Exptl. details are critical for reproducibility. K. G. Stone

CA

28

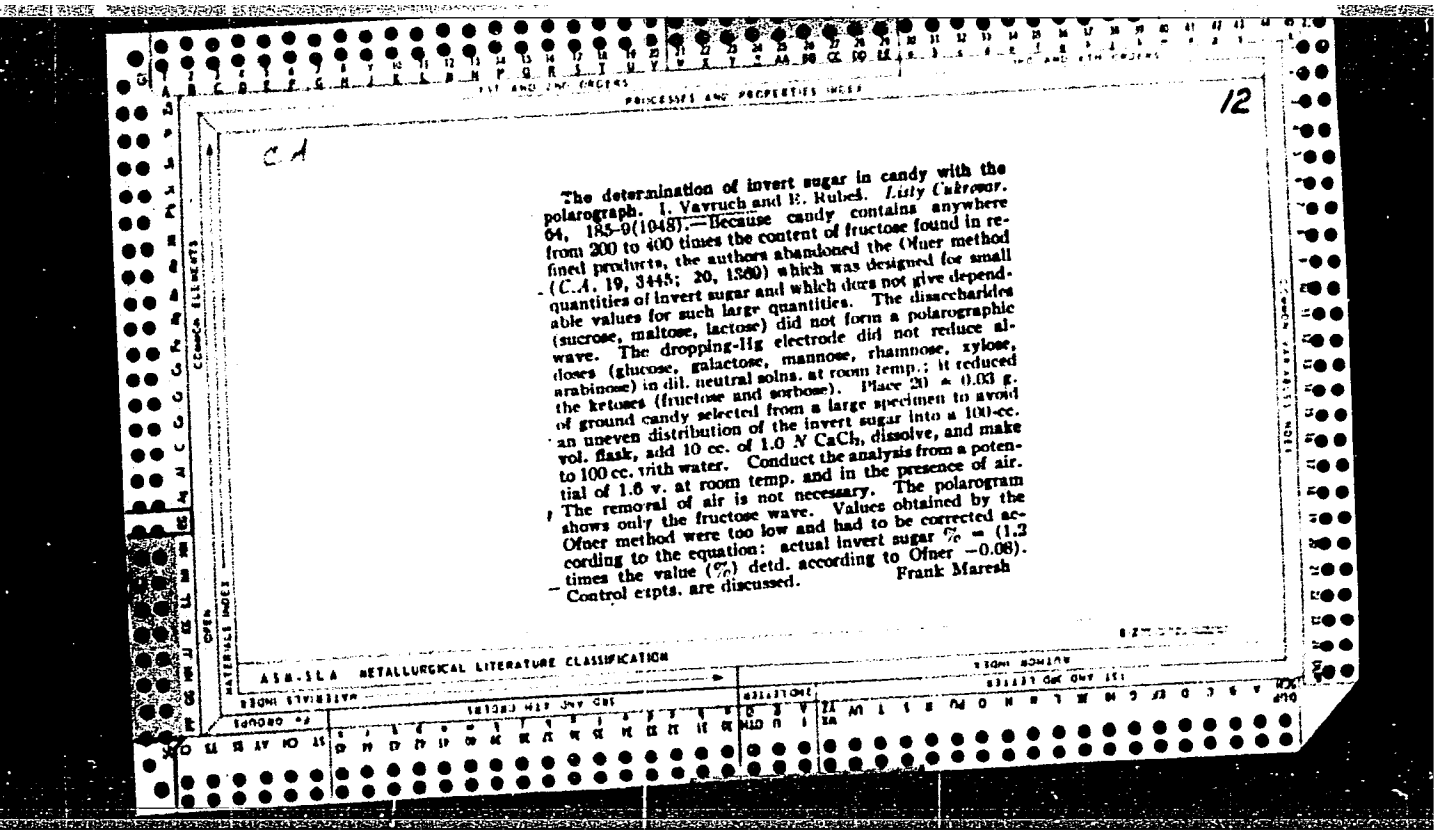
Adsorption and chromatographic separation of sugars on bone char. I. Vavruch. *Listy Cukrovar.* 66, 249–51(1949-50).—The adsorption of glucose, fructose, galactose, sucrose, maltose, and lactose by a Czechoslovakian bone char (9.4% of C on dry matter, 8.7% of H_2O, ground and sieved to contain no dust or particles > 0.5 mm. in diam.) was tested. The bone char (5 kg.) was mixed with 5 l. of H_2O, washed for 48 hrs., and dried at 130°. In each test, 120 g. of char was packed in a glass column (3.15 cm. in diam.), to 8.5 g. per ml., with gauze, etc. at the bottom. The sugar soln. (100 ml.) was percolated through the dry char (mostly at 20–25°), the initial pH value being 6, and the pH value of the filtrates 8.2. Adsorption was measured by examg. the filtrates polarimetrically. Monosaccharides were more easily adsorbed than disaccharides; with increasing concn. of sucrose, the amt. adsorbed increased up to 50%, but was lower with concns. of 60% and over. The amt. of sucrose adsorbed per g. of char decreased with decreasing length of column, probably owing to faster flow in the shorter column. Monosaccharides were more readily desorbed by H_2O or by aq. ethanol (7%) than were disaccharides. Ethanol gave more rapid desorption, but the differences found between the sugars with the bone char were insufficient for chromatography; active C is better in this respect. Similar results were obtained in tests with invert sugar, mixts. of glucose and sucrose, thick juice, raw sugar, molasses, and honey. The sucrose remaining in the bone char hastened the desorption of glucose from mixts. B. A.



CA 1

A study of adhesion of microscopic particles of iron on glass and films by the adhesion-angle method. I. Vavruch. *Collection Czechoslov. Chem. Communs.* 13, 493–504(1948)(in English); cf. *C.A.* 34, 920⁹.—The adhesion on glass of Fe particles, 13.7 μ in diam., was measured at 25° ± 2° by the adhesion-angle method. The expts., following the change of adhesion of the given specimens of Fe with time, proved that the values were not affected by the oxidation. The value of p_a, the sp. adhesion in dynes per sq. cm., was always higher in H_2O than in org. liquids. The p_a values depended on the chem. constitution of the medium, on its mol. wt., or on the length of the chain of the members of a homologous series and on the nature and no. of substituent groups. Ions acted, with small exceptions, in agreement with the Hofmeister lyotropic series. Increasing charge of the cation decreased the sp. adhesion of Fe. The effect of the charge of the anion was much less pronounced and chiefly specific. In concd. aq. NH_3, the adhesion was greater than in pure AcOH. In solns. of NH_3 of different concns. 3 groups of p_a values were found, which repeated with change of concn. The dependence of p_a on the concn. of different univalent alcs. in a homologous series in H_2O was analogous. The solns., showing the same dielec. mol. polarization, affected the adhesion in a similar way. With increasing concn. sucrose decreased p_a. Colloids like starch, soaps, and gelatin, strongly influenced p_a in very small concn. (less than 0.001%), gelatin increasing the adhesion, starch and Na stearate decreasing it. Crystal violet increased p_a. Insol. films on glass increased adhesion according to the lyophobic character of the film shown toward the liquid medium.

R. E. Dunbar



12

CA

The determination of invert sugar in candy with the polarograph. I. Vavruch and E. Rubeš. *Listy Cukrovar.* 64, 185–9(1948).—Because candy contains anywhere from 200 to 400 times the content of fructose found in refined products, the authors abandoned the Ofner method (*C.A.* 19, 3445; 20, 1580) which was designed for small quantities of invert sugar and which does not give dependable values for such large quantities. The disaccharides (sucrose, maltose, lactose) did not form a polarographic wave. The dropping-Hg electrode did not reduce aldoses (glucose, galactose, mannose, rhamnose, xylose, arabinose) in dil. neutral solns. at room temp.; it reduced the ketoses (fructose and sorbose). Place 20 ± 0.03 g. of ground candy selected from a large specimen to avoid an uneven distribution of the invert sugar into a 100-cc. vol. flask, add 10 cc. of 1.0 *N* CaCl$_2$, dissolve, and make to 100 cc. with water. Conduct the analysis from a potential of 1.6 v. at room temp. and in the presence of air. The removal of air is not necessary. The polarogram shows only the fructose wave. Values obtained by the Ofner method were too low and had to be corrected according to the equation: actual invert sugar % = (1.2 times the value (%) detd. according to Ofner −0.08). Control expts. are discussed.

Frank Maresh

C
3

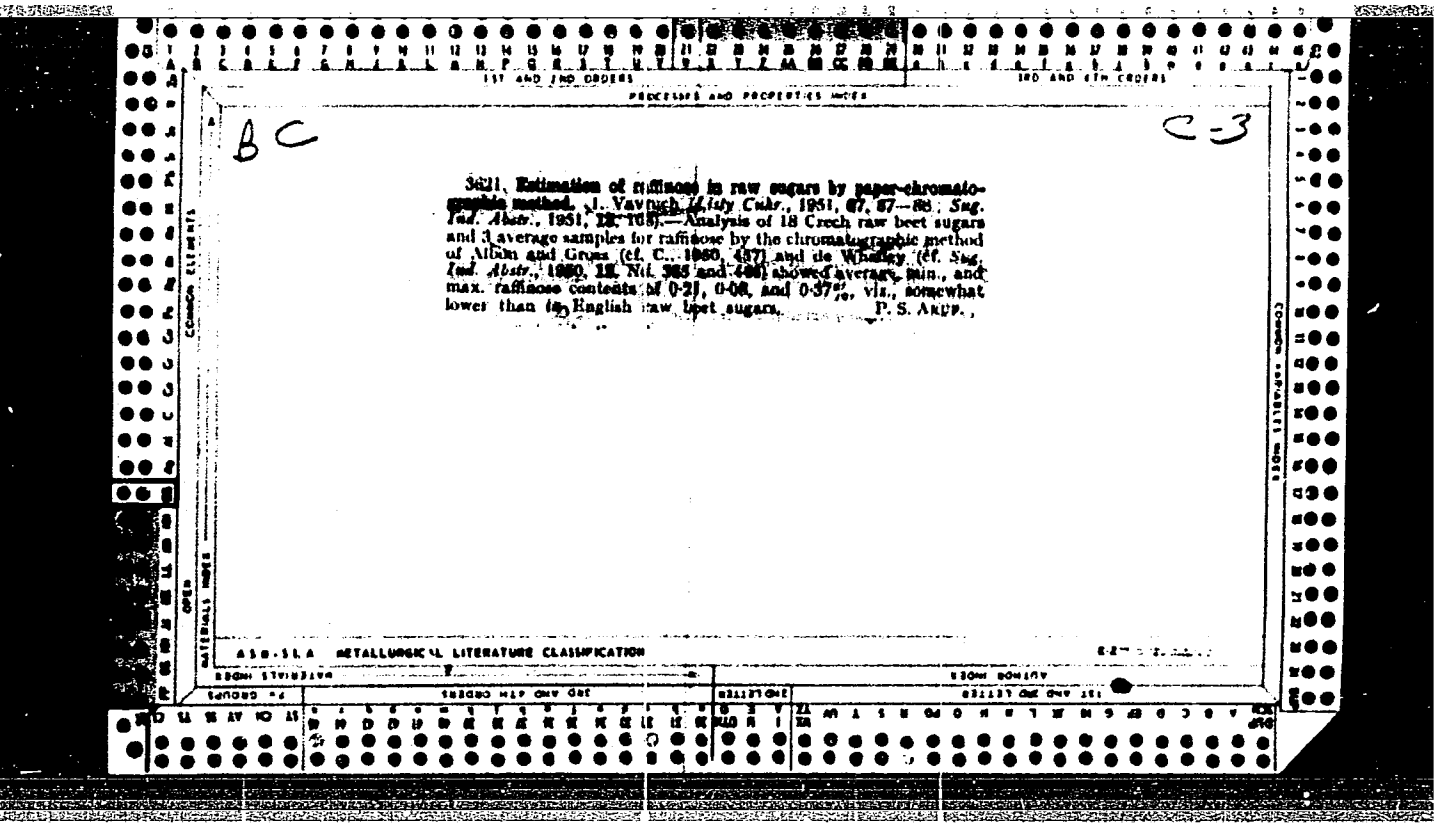
1862. **Quantitation of refined sugars by polarographic method.** I. Vavruch (*Proc. 1st Int. Polarographic Congr., Prague*, 1951, 1, 843—846; *Sug. Ind. Abstr.*, 1951, 13, 180).—The author's method for the polarographic estimation of surface-active substances in refined sugars (cf. C., 1950, 457) and the combination of this method with conductimetric analysis (cf. *Sug. Ind. Abstr.*, 1951, 13, 150) are briefly described. P. S. Arup.

B4

C
3

890. Determination of amino-acids in molasses and [fermentation] slops by paper partition chromatography. I. Vavruch (*Listy Cukr.*, 1951, **67**, 151—153; *Sug. Ind. Abstr.*, 1951, **13**, 152—153).—Beet molasses (purified by electrodialysis), cane molasses, alcohol- and citric acid-fermentation slops, and the acid substrate frc : the latter fermentation were analysed by one- or two-dimensional paper chromatography, using as solvents water-*n*-butanol-acetic acid (5 : 4 : 1) and conc. aq. phenol. A very sensitive method for cane molasses was to develop 20 spots close together by the first solvent (with a spaced-off spot for reference), cut out the separated (unsprayed) compounds on strips, extract with hot water, purify, and re-chromatograph each with phenol. Beet molasses yielded glutamic, γ-aminobutyric, and aspartic acids, and small amounts of other amino-acids, with glycine, glutamine, valine, serine, alanine, leucine, and *iso*leucine. The amino-acid content of cane molasses was much lower.

P. S. ARUP.



BC

C-3

3621. **Estimation of raffinose in raw sugars by paper-chromatographic method.** J. Vavruch. *Listy Cukr.*, 1951, **67**, 87—88; *Sug. Ind. Abstr.*, 1951, **13**, 108).—Analysis of 18 Czech raw beet sugars and 3 average samples for raffinose by the chromatographic method of Albin and Gross (cf. C., 1950, 437) and de Whalley (cf. *Sug. Ind. Abstr.*, 1950, **12**, Nil. 385 and 486) showed average, min., and max. raffinose contents of 0·21, 0·08, and 0·37%, viz., somewhat lower than for English raw beet sugars. P. S. Arup.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

BA

3

1221. **Determination of molasses raffinose in molasses by paper partition chromatography.** I. Vavruch (*Listy Cukr.*, 1951, **67**, 211—212; *Sug. Ind. Abstr.*, 1951, **13**, 168—169; cf. C., 1951, 468).—The raffinose contents of 16 samples of molasses and one of citric acid fermentation slop were determined in aq. 20% undefecated, recently filtered (paper) dilutions by the method of de Whalley *et al.* (cf. C., 1951, 322). Defecated solutions were more difficult to analyse owing to the presence of salts. Standard molasses to which known amounts of raffinose were added were prepared from 140 g. of sucrose, and 57 g. of K lactate (87·6%) in 39 g. of water, heated for 5 hr. (water bath) with stirring, and made up with water to give a syrup of 77° Brix. Molasses solutions of 72—82° Brix were used for the actual analysis. In the method of analysis the paper was spotted with the sample from a marked capillary tube, and dried at 90° for ~45 min. After development (~30 hr.) the paper was dried at 90° for 1 hr., immediately sprayed with α-naphthol, and dried for 15—20 min. at 90°. Separation was satisfactory, and collaborative analyses of one sample by five persons showed for 20 analyses an accuracy of ±0·2%; various molasses contained 0·55—1·48% (average 0·94%) of raffinose; the slop contained 0·08%.

P. S. ARUP

Sugar, Starch + Gums
28

The classification of refined sugars by the polarographic method. L. Vavruch.(Research Inst. Czech. Sugar Ind., Prague). *Sborník Mezinárod. Polarog. Sjezdu Prase. Int. Congr.* 1951, Pt. I, *Proc.* 839–41(in Russian), 842–4(in English).—Refined sugars are grouped into 4 quality classes on the basis of combined results obtained with polarographic and conductometric methods. In the former method, the suppression of an O max. is used to indicate the presence of org. nonsugars. The latter method indicates the content of ash (sol. salts).

Otto H. Müller

VAVRUCH, Ivan

Kinetics of limited swelling of ion exchangers. Sbor chem tech no.3, part 1:227-244 '59.

1. Katedra fyzikalni chemie, Vysoka skola chemicko-technologocka, Praha.

S/081/62/000/023/021/120
B156/B186

AUTHORS: Vavruch, Ivan, Kohoutová, Hana

TITLE: Conductivity in biologically important heterogeneous systems. Part II. Steric effects in gelatinous model systems

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1962, 125, abstract 23B921 (Sb. Vysoké školy chem.-technol. v Praze. Potravin. technol., v. 5, no. 1, 1961, 15 - 24 [Czech.; summaries in Russ. and Eng.])

TEXT: The electrical conductivity of a model of a dispersed system with a dispersion medium (agar-agar gel containing 0.01 - 0.5 N solutions of KCl) and with a dispersed phase (glass balls and cylinders and silon fibres oriented parallel or perpendicular to the direction of the electrical field) have been investigated. The steric effects in systems of this type depend greatly on the geometrical shape, distribution and orientation of the dispersed phase particles. They are almost independent of the electrical conductivity of the gelatinous dispersion medium. For Report I, see RZhKhim, 1962, 7S22. [Abstracter's note: Complete translation.]

Card 1/1

VAVRUCH, Ivan

CZECHOSLOVAKIA/Physical Chemistry. Surface Phenomena. Adsorption. Chromatography. Ion Exchange. B-13

Abs Jour: Ref Zhur-Khim., No 13, 1958, 42757.

Author : Bouzkova Jirina, Hejimanek Milos, Vavruch Ivan.
Inst :
Title : Contribution to the Theory of Paper Chromatography of Inorganic Substances. III. Quantitative Studies of Frontal and Elution Chromatograms.

Orig Pub: Chem. listy, 1957, 51, No 1, 36-46; Sb. chekhosl. khim. rabot, 1957, 22, No 4, 1219-1231.

Abstract: Strips of Whatman No 1 paper were immersed, in frontal analysis, in a solution of NaCl or KCl in C_2H_5OH, after the front of the solution had progressed over a distance l the strips were cut into 1 cm long

Card : 1/3

pieces and the amount of salt contained therein was determined. The distance of the inflexion point of the curve of salt distribution over the strip, measured from the starting line, is $h = A \cdot l$, where A is a constant. In elution analysis a strip of paper uniformly impregnated with the solution, over a portion of l^0 in length, is eluted with a solvent. The curves of salt distribution over the strip show maxima, with $l(max) = A \cdot l + l^0/2$. Constants A, calculated from frontal elution analyses, coincide and are equal to 0.23-0.25 for KCl, and 0.46-0.52 for NaCl. By static measurements of adsorption of salts at the pulped paper, values of A of 0.241 and 0.547, respectively, were obtained. The performed

CZECHOSLOVAKIA/Physical Chemistry. Surface Phenomena. Adsorption. Chromatography. Ion Exchange. B-13

Abs Jour: Ref Zhur-Khim., No 13, 1958, 42757.

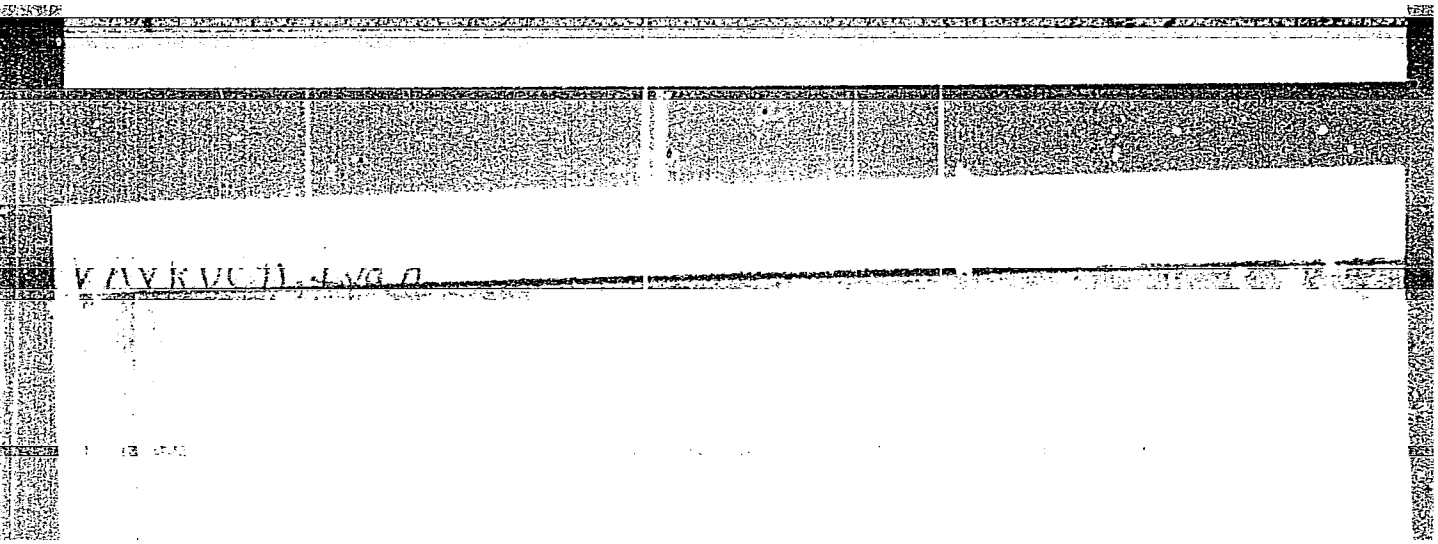
investigations show that chromatography on paper and in a column are governed by the same laws. The authors propose to utilize the constant A, in lieu of Rf, for identification of substances. Communication II see RZhKhim, 1956, 68609.

Card : 3/3

YAVRUCH, IVAN

6

[illegible] of paper chromatography of inorganic com-



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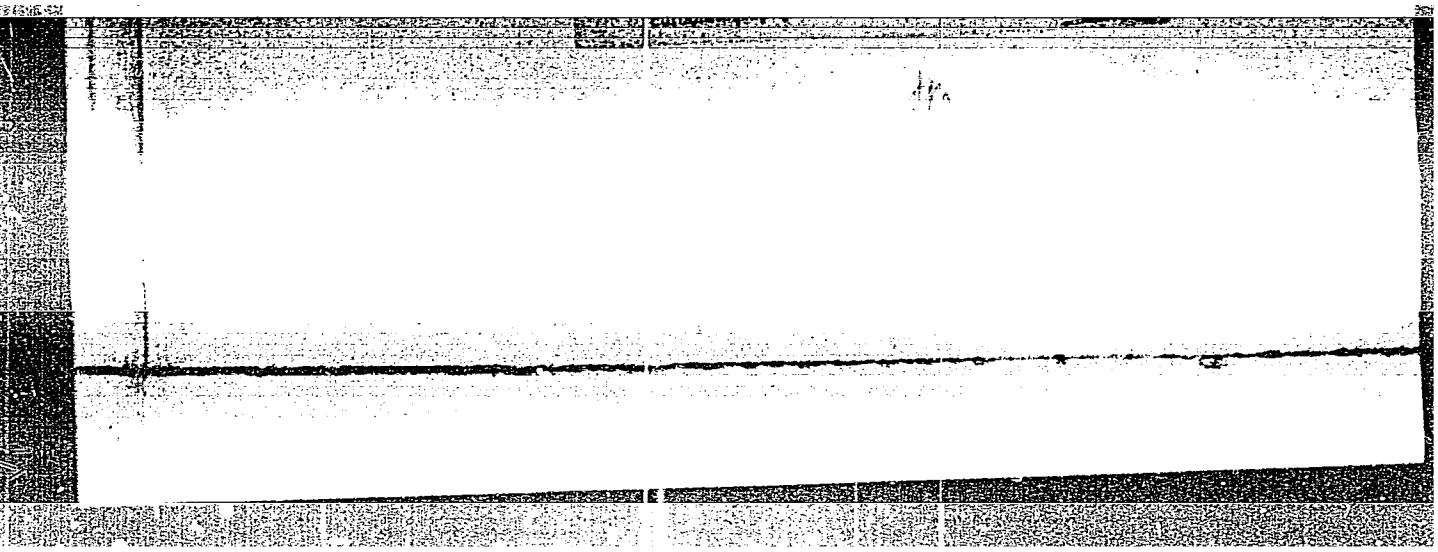

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VAVRUCH, I.; HEJTMANEK,M.; BOUZKOVA, J.

Contribution to the theory of paperchromatography of inorganic compounds. III. Quantitative treatment of the frontal and elution chromatographies. p. 36. (Chemicke Listy, Praha. Vol. 51, no. 1, Jan., 1957.)

SO: Monthly List of East European Accession (EEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

VAVRUCH, I.

7

5107. Paper chromatography of inorganic compounds. [illegible] alkaline-earth chlorides. [illegible]

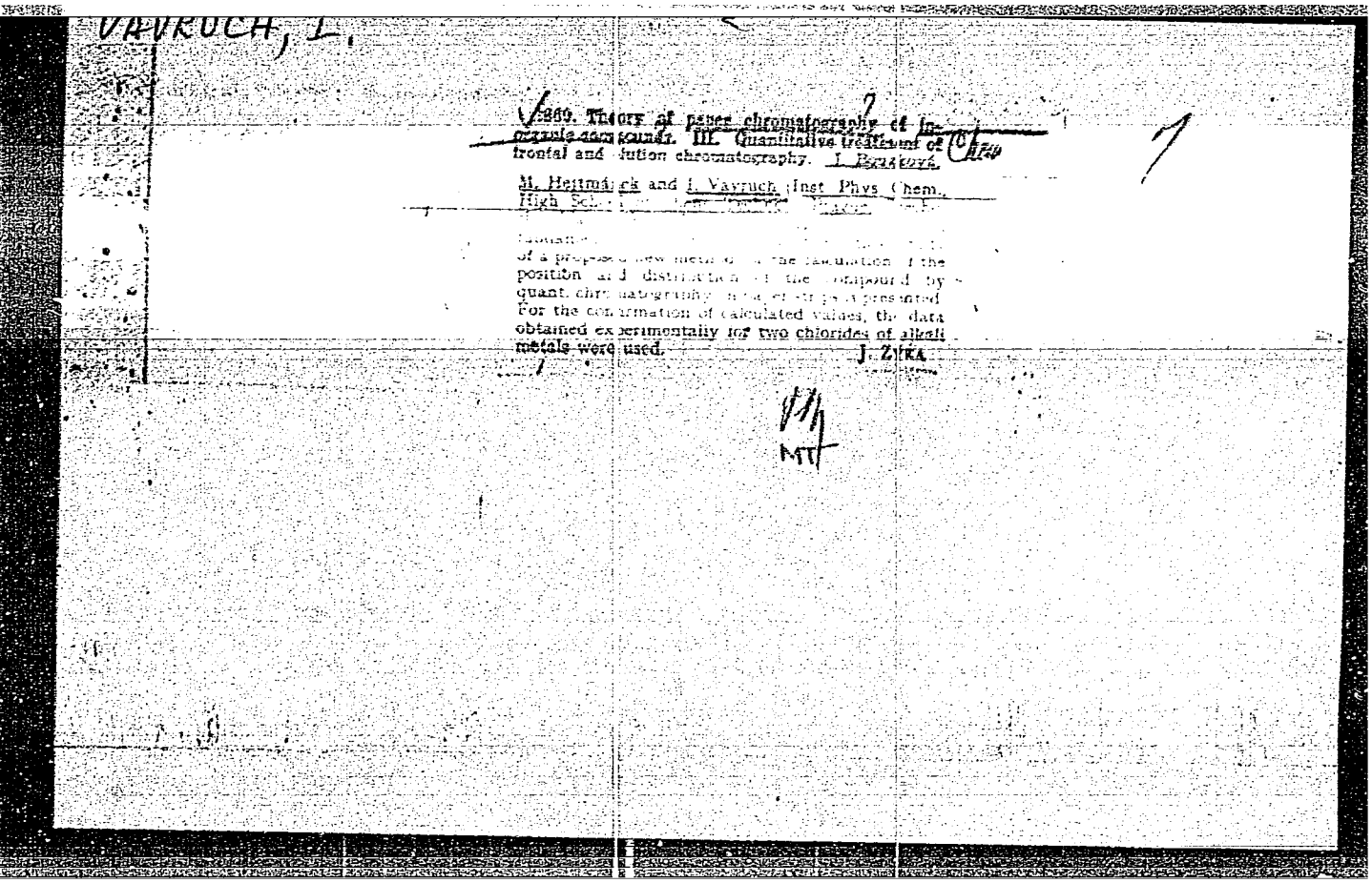
[illegible] in English [illegible] inorganic ions influenced [illegible]

extraction of salts by the solvents used [illegible] adsorption of ions on the paper, and the formation of complexes with the solvents. Methanol (97%), ethanol (98%), n-propanol, n-butanol, n-pentanol, acetone, pyridine and benzene were examined. The only salts examined were chlorides. These were detected by spraying the paper with 0·5 N [illegible] daylight until greyish- [illegible]

[illegible] solvent in [illegible] The duration of analysis [illegible] the analysis solvent from the origin at the [illegible] values. The [illegible] had a significant influence [illegible] dependence of the height [illegible] chlorides of K, Na and Li was studied with the [illegible] possible application in the partly with respect [illegible] simultaneous determination of Na and K. The band height increases with increasing concn. but [illegible] suggested [illegible] the [illegible]

after chromatog[illegible] KCl, NaCl, LiCl [illegible] diagrammatically. Adsorption from alcoholic soln. is always higher than from aq. soln.

W. J. WRIGHT



VAVRUCH, L.

3869. Theory of paper chromatography of inorganic compounds. III. Quantitative treatment of frontal and elution chromatography. I. Basic laws.

M. Heitmánek and L. Vavruch. Inst. Phys. Chem., High Sch. [illegible]

[illegible] of a proposed new method for the calculation of the position and distribution of the compound by quant. chromatography. [illegible] presented For the confirmation of calculated values, the data obtained experimentally for two chlorides of alkali metals were used. J. ZÝKA

MTF

VAVRUCH, I.

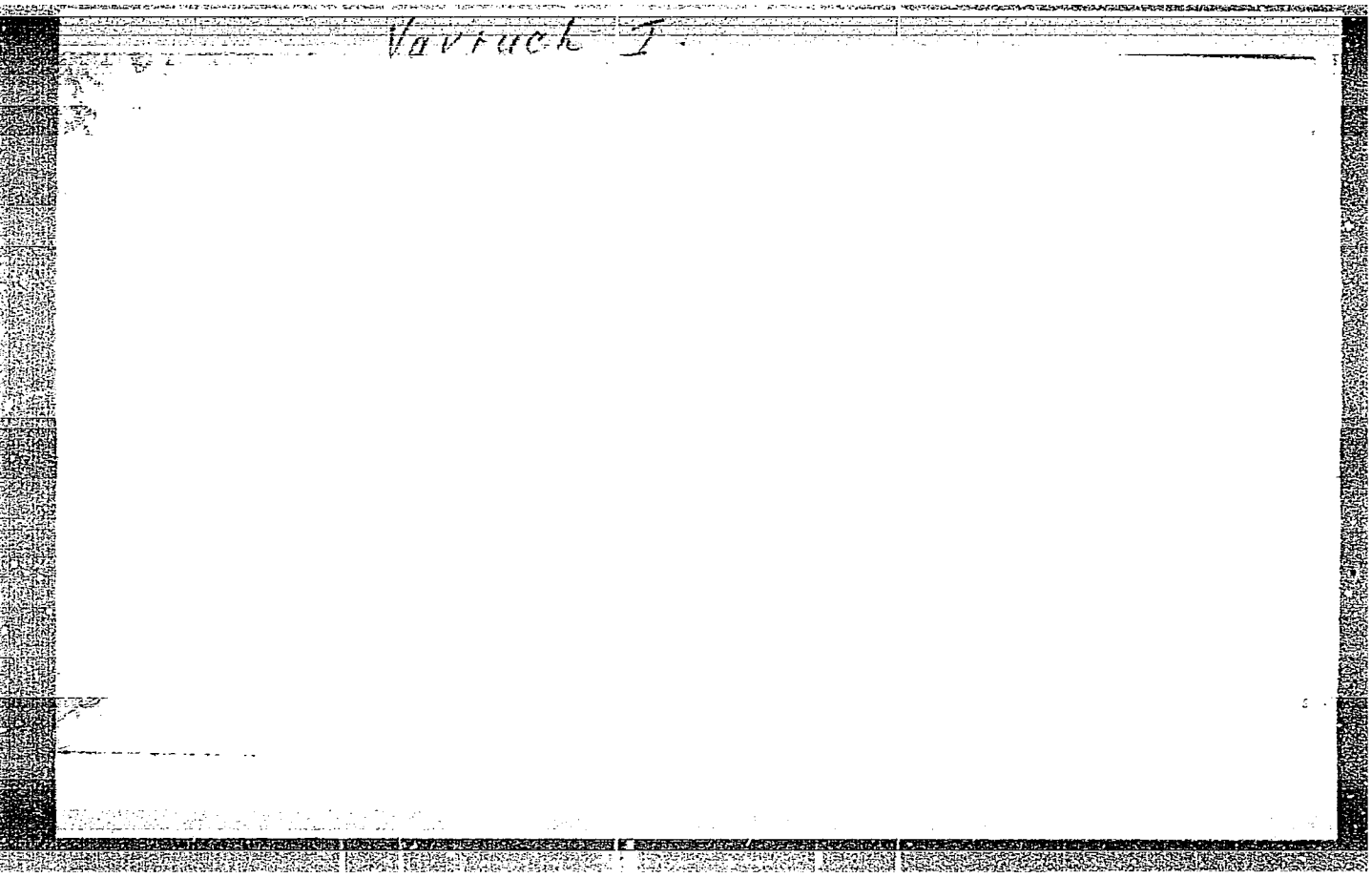
VAVRUCH, I. Kinetics of solvent flow in paper chromatography.
p. 29. Vol. 50, no. 1, Jan. 1956. CHEMICKE LISTY. Praha, Czechoslovakia.

SOURCE: East European Accessions list (EEAL) Vol. 6, No. 4, April 1957

VAVRUCH I.

Use of chromatography in analysis of foodstuffs. p. 207. Vol 9, no. 3, Mar. 1955. Chemicke Zvesti.

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, no. 3, March 1956



VAVRUCH, IVAN

5

CZECH

The theory of paper chromatography of inorganic compounds. I. Alkali and alkaline earth chlorides. Ivan Vavruch and Miloš Heitmánek (Vysoká škola chem.-technol., Prague). *Chem. Listy* 49, 200–11(1949).—Capillary rise of various solvents on chromatographic paper was studied and the following order of decreasing rate of capillary rise was found: $Me_2CO > C_6H_6 > H_2O > C_5H_5N$, MeOH > EtOH > PrOH > BuOH > AmOH. Further were studied relations between R_F of individual salts, between their nature and the nature of solvents, between the spot size and the concn., and the dependence of R_F and the size of the salt spot on the time of analysis. The distribution of individual salts on the chromatogram and the adsorption of the salts on paper were followed conductometrically. A simple procedure was worked out for semiquant. micro-detn. of K, Na, and Li in the presence of each other. A mechanism of the sepn. of inorg. salts on paper is proposed.

M. Hudlický

VAVRUCH, I.

CZECH

Chromatography in analytical chemistry in sugar manufacture. I. Vavruch (Sugar Ind. Research Inst., Prague). *Sborník Československé Společnosti Pracovní Konf. Anal. Chemiků* 1, 254–8 (1952)(Pub. 1953).—Paper chromatography made possible the quant. detn. of raffinose in raw sugar and molasses, before and after alcoholic and citric acid fermentation. The same method was used to study the amino acids and their amides present in beet and cane molasses, before and after alc. and citric acid fermentation. Cane molasses had a much smaller amino acid content than beet molasses. The content of different amino acids changed to different extents during fermentation. The content and movement of sugars, amino acids, and their amides in various parts of beets and beet seeds, during vegetative growth, germination at various temps., and different storage conditions was studied; a comparison was made between sugar beets, red beets, and feed beets, and between healthy and diseased beets. In general, the sugar content decreased with increasing amino acid content. The same method was used for the analysis of honey. The protein from fresh beet juice was coagulated with MeOH in the cold, evapd., and redistd. in H_2O. Only a small amt. of free amino acids was present. Pectin was present along with the protein. The protein was then hydrolyzed with trypsin, and after filtration the amino acids were adsorbed on a column of strongly acid cation exchanger (sulfonate type). The column was eluted with 7*N* NH_4OH, giving pure amino acids with a small amt. of color which was removed with carbon. The soln. was subjected to one- and two-dimensional paper chromatography, and 16 amino acids were sepd.

H. Newcomba

VAVRUCH, I.

1624* Chromatographic Study of the Sugar Beet and Its Seed. **Khromatograficheskoe izuchenie sakharnoi svekly i ee semian. II.** Nitrogen Free Organic Acids. **Bezazotistye organicheskie kisloty. III.** Purines, Pyrimidines, Urea, Betaine, and Their Derivatives. **Puriny, pirimidiny, mocheviny, betain, i ikh proizvodnye.** (Russian.) I. Vavruch. *Collection of Czechoslovak Chemical Communications.* v. 19, no. 4, Aug. 1954, p. 817-826.

Detected 12 N-free acids and 5-pyrrolidone-2-carboxylic acid. Tables. 19 ref.

VAVRUCH, I.

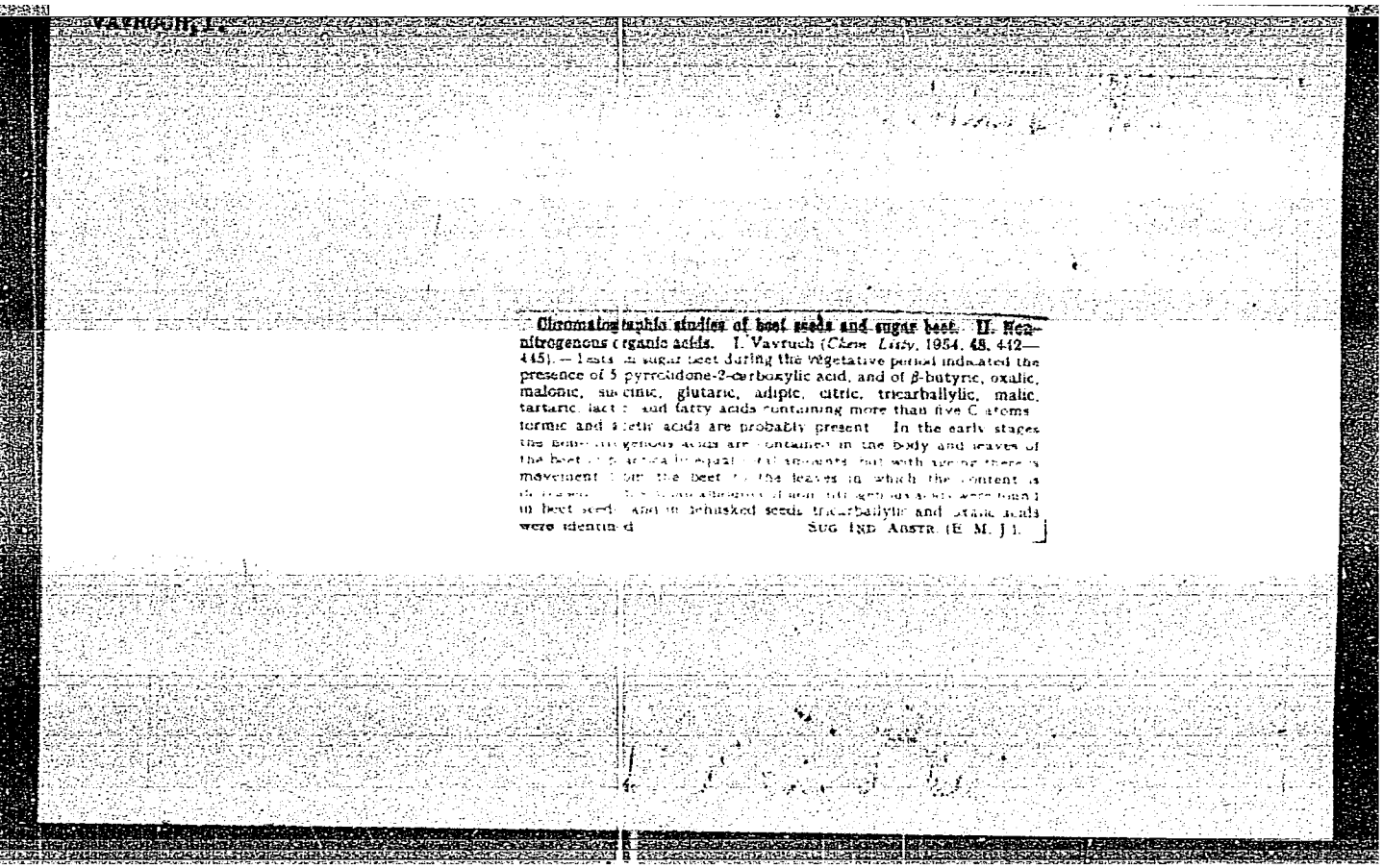
The use of paper chromatography in food analyses. Ivan Vavruch (Vyšká škola chem.-tech., Prague). *Chem. Zvesti* 9, 207-12(1955); cf. *C.A.* 49, 525g.—A lecture. The application of paper chromatography in analyses of sugars, amino acids, and N-free org. acids and their mixts. is discussed.

Jan Micka

VAVRUCH, I.

Chromatographic studies of beet seeds and sugar beet. III. I. Vavruch (*Chem. Listy* 1554, 48, 448–449).—In beet seeds, without acid hydrolysis of the extract vernine, allantoin, and probably guanidine and [illegible] and hydrolysis xlenine, xanthine, xanthine, and vernine were present. The juice of the ripe beet contained xlenine, guanine, allantoin, vernine, hypoxanthine, xanthine, heter- [illegible] and traces of [illegible] vernine, hypoxanthine, and xanthine increase, and the amounts of allantoin and guanidine probably increase. The determination of vernine, allantoin, and guanidine is described.

Sug. Ind. Abstr. (E. M. J.)



Chromatographic studies of beet seeds and sugar beet. II. Heavy nitrogenous organic acids. I. Vavruch (*Chem. Listy*, 1954, 48, 442—445). — Tests in sugar beet during the vegetative period indicated the presence of 5 pyrrolidone-2-carboxylic acid, and of β-butyric, oxalic, malonic, succinic, glutaric, adipic, citric, tricarballylic, malic, tartaric, lactic and fatty acids containing more than five C atoms; formic and acetic acids are probably present. In the early stages the heavy nitrogenous acids are contained in the body and leaves of the beet in equal amounts but with age there is movement into the beet [illegible] the leaves in which the content is [illegible]. The following heavy nitrogenous acids were found in beet seed: and in dehusked seeds tricarballylic and oxalic acids were identified. SUG IND ABSTR. (E. M. J.).

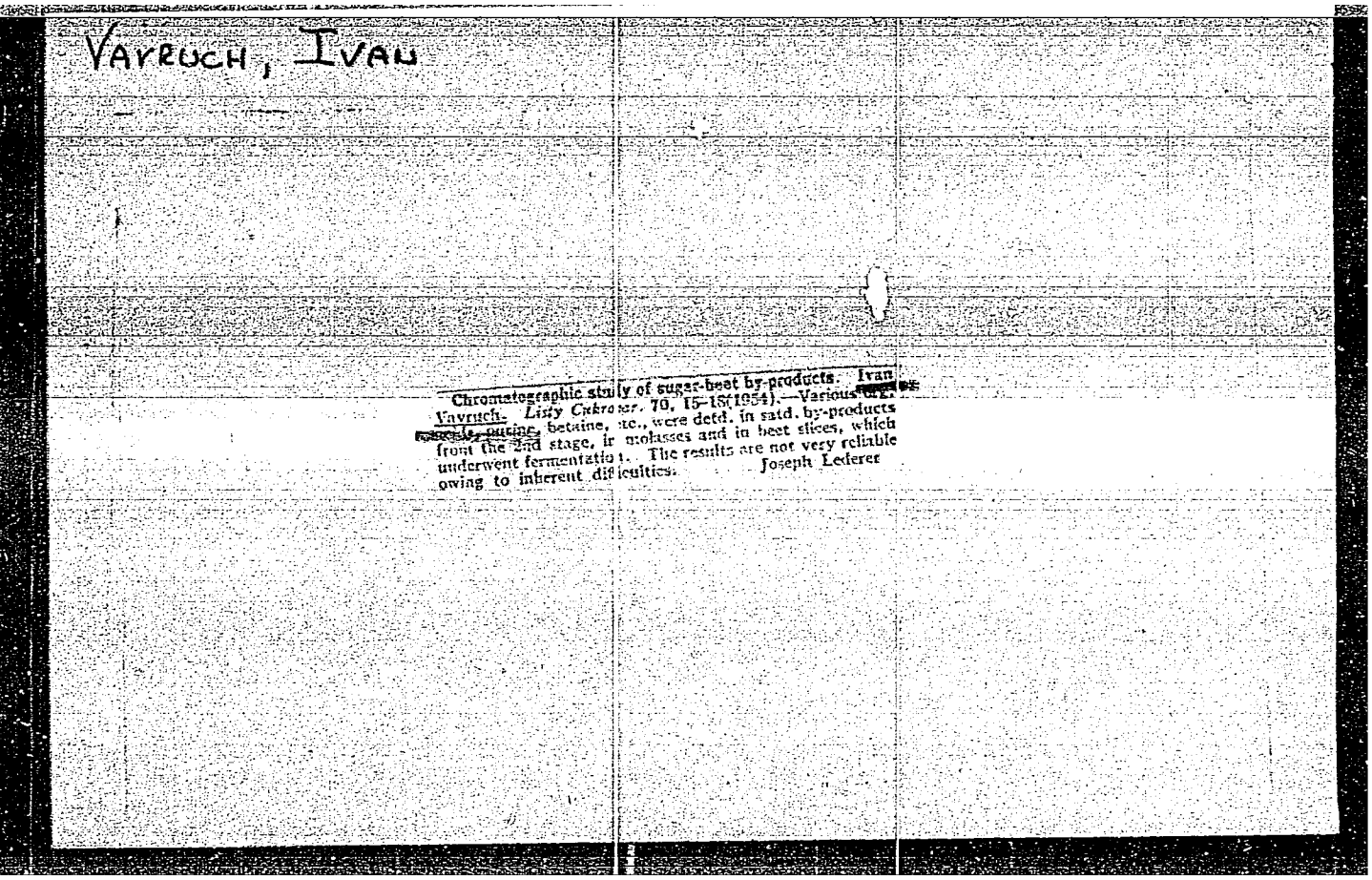
VAVRUCH, I.

"Chromatographic Study of the Sugar Beet and Its Seeds. II. Nitrogen-free Organic Acids. .III. Purines, Pyrimidines, Urea, Betaines, and their Derivatives", P. 442, (CHEMICKE LISTY, Vol. 48, No. 3, 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955, Uncl.

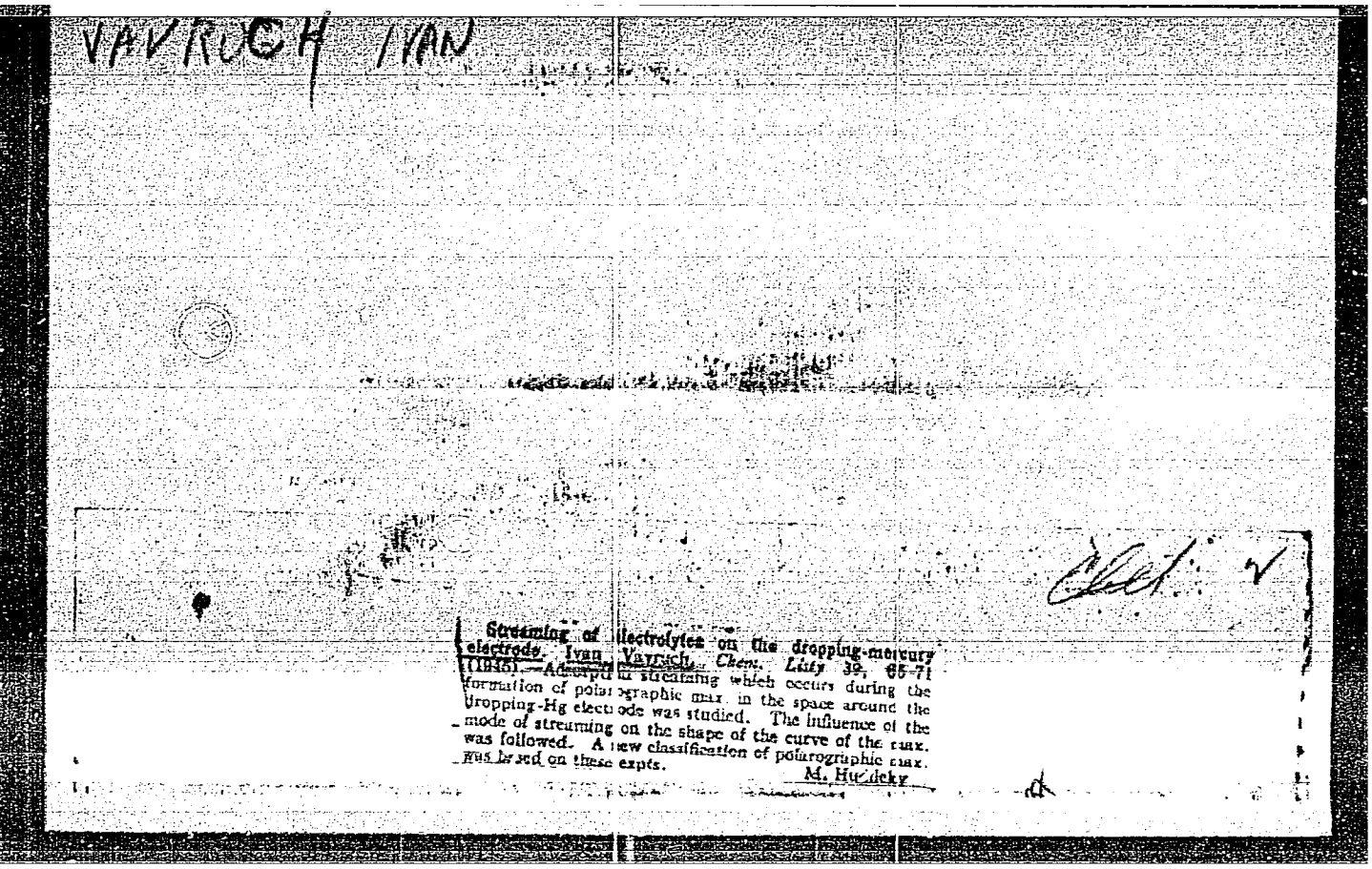
VAVRUCH, I.

Chromatographic studies on sugar beet. II. Nitrogen-free organic acids. Ivan Vavruch (Výzkú. ústav cukrov., Prague, Czech.). [illegible] (1954); cf. C.A. 46, 11728d.—Paper chromatography was used for the quant. and semiquant. study of the content and movement of N-free org. acids in the bulb and leaves of sugar beets. The seeds of the sugar beet contain only small amts. of N-free acids. In the bulb and leaves, the presence of butyric, oxalic, malonic, succinic, glutaric, adipic, citric, tricarballylic, malic, tartaric, lactic, and of the monocarboxylic acids with more than 5 C atoms was noticed, also 5-pyrrolidone-2-carboxylic acid. The presence of formic and acetic acids is disputable. III. Purines, pyrimidines, urea, betains, and their derivatives. *Ibid.* 445-9.—Paper chromatography, mostly in BuOH satd. with H_2O, was used for the detection of vernine (R_f 0.13), guanine (0.17), xanthine (0.21), hypoxanthine (0.31), adenine (0.48), allantoin (0.11), urea (0.28), and guanidine (0.35). Urea and its derivs. were chromatographed in aq. solns.; betaine and its derivs., in ternary mixts. The presence of 7-methylxanthine in the bulb is suspected. The changes in the contents of the above compds. during vegetation periods were followed. M. Hudlický



VAVRUCH, IVAN

Chromatographic study of sugar-beet by-products. Ivan Vavruch. *Listy Cukrovar.* 70, 15–18(1954).—Various ests. betaine, etc., were detd. in satd. by-products from the 2nd stage, ir molasses and in beet slices, which underwent fermentatio t. The results are not very reliable owing to inherent difficulties. Joseph Lederer



VAVRUCH IVAN

Streaming at electrolytes on the dropping-mercury electrode. Ivan Vavruch. *Chem. Listy* 39, 65-71 (1945).—Adsorption streaming which occurs during the formation of polarographic max. in the space around the dropping-Hg electrode was studied. The influence of the mode of streaming on the shape of the curve of the max. was followed. A new classification of polarographic max. was based on these expts.

M. Huzicky

VAVRUCH, IVAN

Fysikalni chemie. [Vyd. 1.] Praha, Statni pedagogicke nakl., 1953. Vol. 1. (Ucebni texty vysokych skol) [Physical chemistry. Bibl., diagrs.]

SO: Monthly List of East European Accessions, Vol.3, No.2, Library of Cong., Feb. 1954, Uncl.

CA

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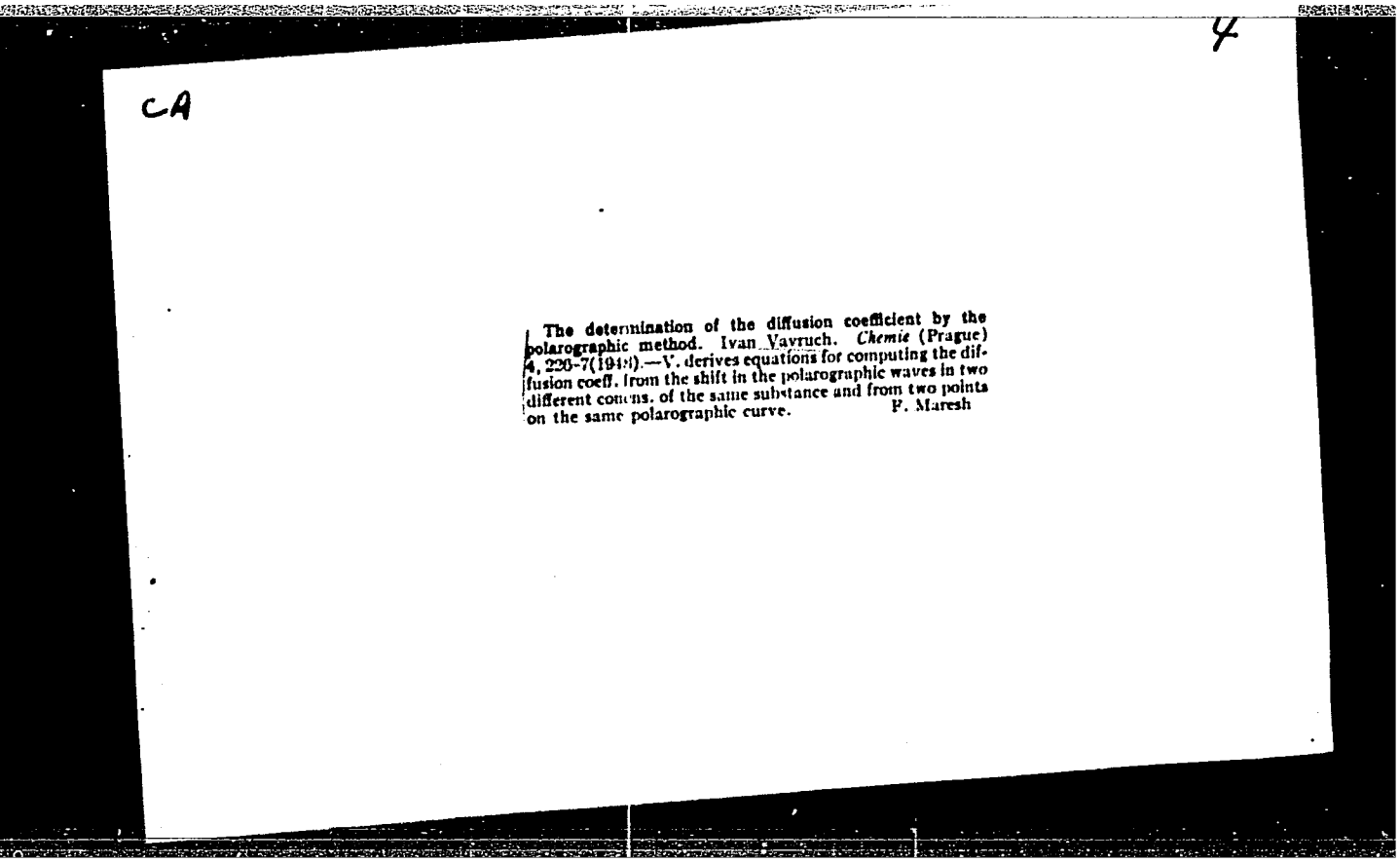
A chromatographic study of amino acids in sugar-beet protein. Ivan Vavruch. (Sugar Research Inst., Prague, Czech.). *Sugar* 47, No. 5, 35-6(1952).—The amino acids were prepd. from fresh press juice by mixing with an equal vol. of 95% MeOH at 4°, centrifuging, hydrolysis with trypsin, adsorption on a sulfonated, strongly acid cation-exchange resin, elution with 7 *N* NH_4OH, treatment with activated C, and evapn. on a water bath. Portions of 5 microl. of soln. in a small amt. of H_2O were chromatographed in 1 and 2 dimensions with various solvents and solvent mixts., and the chromatograms spotted with ninhydrin and other reagents. The amino acids were identified by controls with known amino acids and mixts. of them. *Aspartic* and *glutamic acid*, *asparagine*, and *glutamine* were present in relatively large quantities; *alanine*, *valine*, *leucine*, *isoleucine*, and *γ-aminobutyric acid* totaled 30–50% relative to the aspartic acid; *threonine*, *glycine*, *serine*, *proline*, and *histidine* 15–25%; and *phenylalanine* and *tyrosine* 5–15%. *Arginine* was present in fairly large amts., *cystine* in small amts. *Lysine*, and perhaps *hydroxyproline*, were obtained in traces. The presence of *ornithine* is uncertain.

F. W. Zerban



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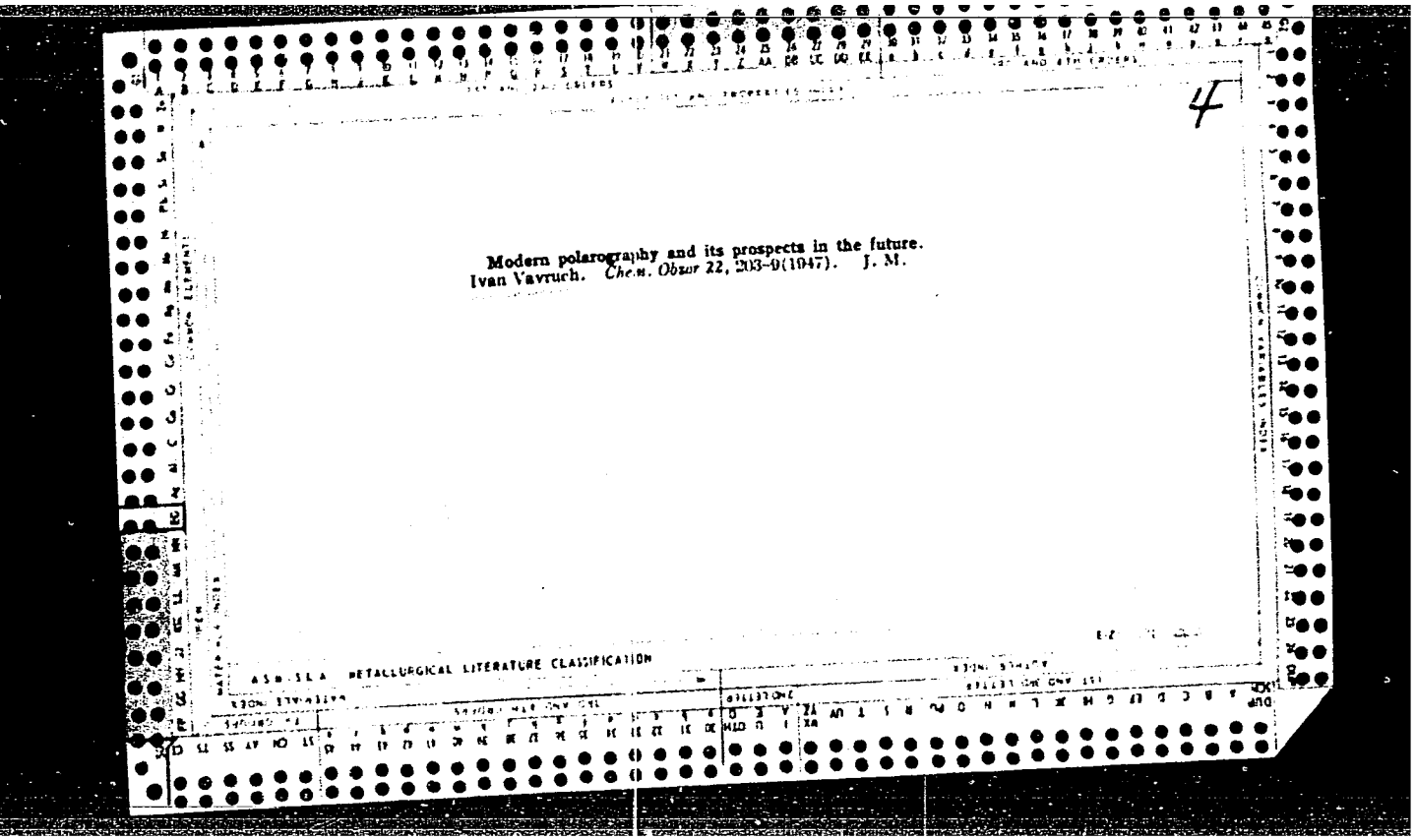
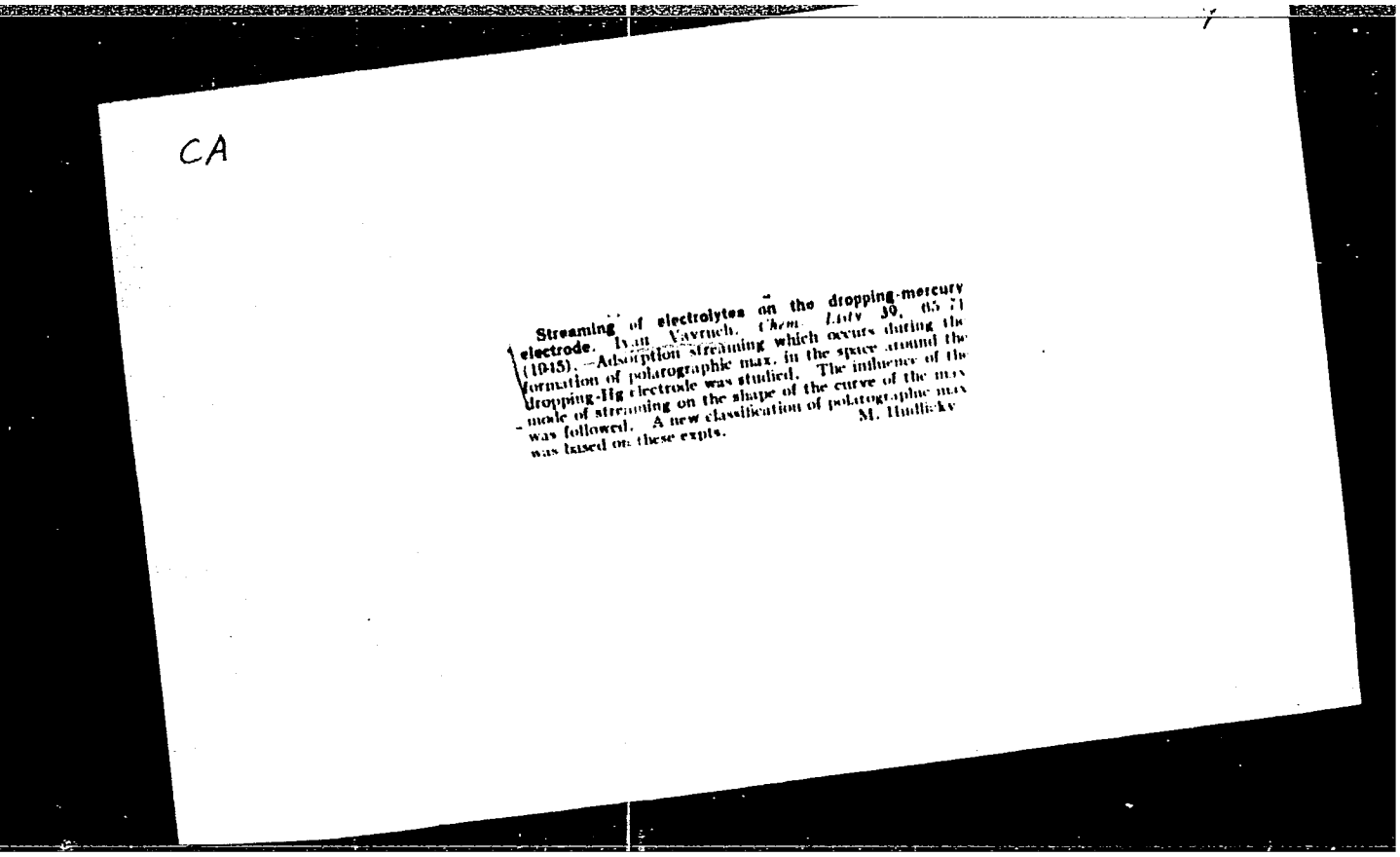
The determination of the diffusion coefficient by the polarographic method. Ivan Vavruch. *Chemie* (Prague) 4, 226-7(1948).—V. derives equations for computing the diffusion coeff. from the shift in the polarographic waves in two different concns. of the same substance and from two points on the same polarographic curve. P. Maresh



Modern polarography and its prospects in the future.
Ivan Vavruch. *Chem. Obzor* 22, 203-9(1947). J. M.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

Streaming of electrolytes on the dropping-mercury electrode. Ivan Vavruch. *Chem. Listy* 39, 65-71 (1945).—Adsorption streaming which occurs during the formation of polarographic max. in the space around the dropping-Hg electrode was studied. The influence of the mode of streaming on the shape of the curve of the max was followed. A new classification of polarographic max was based on these expts. M. Hudlický

C.A

Determination of surface-active substances in refined sugar. Classification by the polarographic method. Ivan Vavruch (Czechoslovak Sugar Ind., Prague). *Anal. Chim.* 22, 930–2(1950).—A summary of the method (*C.A.* 44, 2777c) for the detn. of surface-active materials by their effects on the height of the O max. in 0.002 *M* K_2SO_4.
Louis Meites